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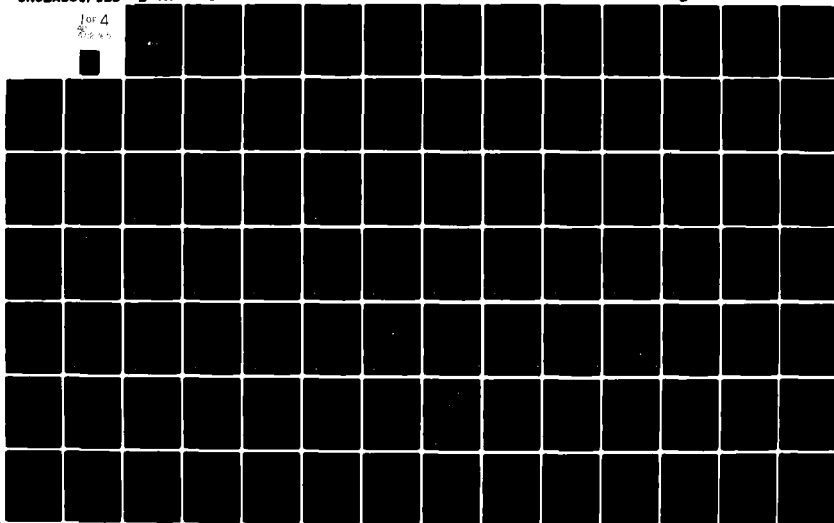
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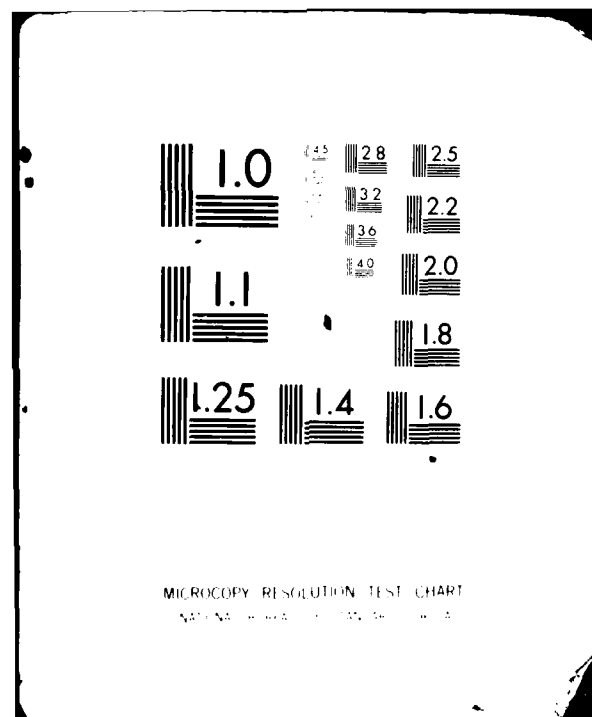
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DTN/OBTS FIELD SURVEYS  
VOLUME III  
BIOLOGICAL RESOURCES  
NEVADA AND UTAH

Prepared for:

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Ballistic Missile Office  
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30 November 1981

FOREWORD

The field surveys were performed under Change Order P00026 to Contract No. F04704-80-C-0006. The three volumes represent a compilation of data, rather than a formal report, and reflect the status of the surveys as of 2 October 1981. The request for this format is contained in the Stop Work Order, dated 15 October 1981, Item F.

This volume, Volume III, presents the results of the biological resources survey that were completed. Volume I presents a brief program overview and a geotechnical summary and Volume II presents the results of the cultural resources survey.

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## 1.0 INTRODUCTION

### 1.1 OBJECTIVE

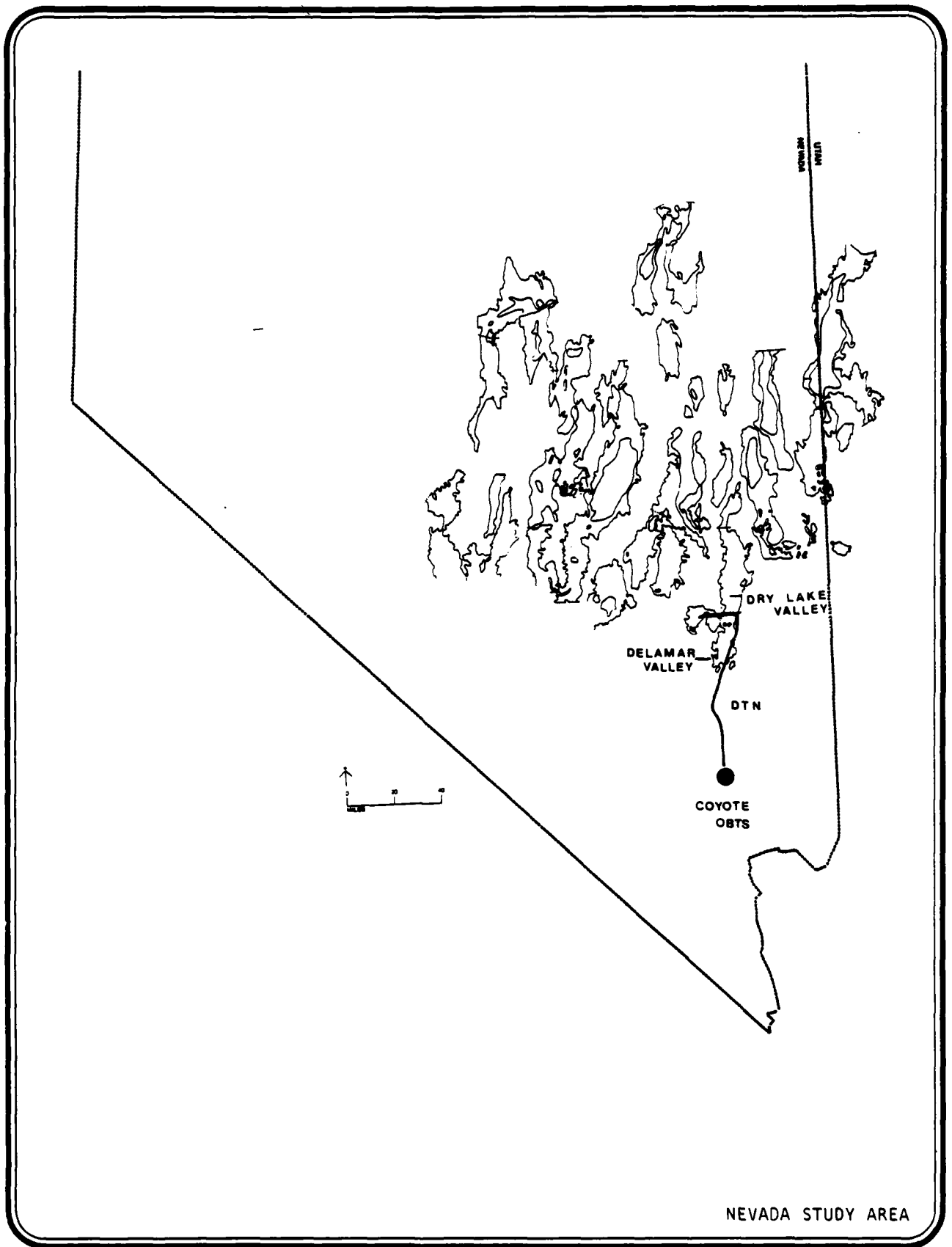
In mid-1981, the AFRCE proposed biological and cultural resources field studies in selected Nevada and Utah locations under consideration as potential Operational Base Test Sites (OBTS) and adjacent portions of the Designated Transportation Network (DTN). Field surveys were undertaken during August and September of 1981 for operational bases at Coyote Spring Valley, Nevada, preferred and alternate locations near Milford, Utah, and one location near Beryl, Utah. Sixty-four miles of DTN and connecting road in Nevada and 49 miles in Utah were also surveyed. The Nevada and Utah study areas are shown in Figures 1-1 and 1-2.

The objective of the surveys was to identify the type and extent of cultural and biological resources within the study areas. This would allow for a relative comparison of the base areas and a determination of possible constraints. It would also provide data to support the land withdrawal application the U.S. Air Force intended to submit to Congress.

### 1.2 REPORT ORGANIZATION

This report is intended to compile results of the OBTS/DTN surveys and contains a minimum of background information. Section 2.0 provides background information, Section 3.0 describes the methodology, Section 4.0 discusses data for the Nevada OBTS at Coyote and the associated DTN, and Section 5.0





NEVADA STUDY AREA

FIGURE 1-1

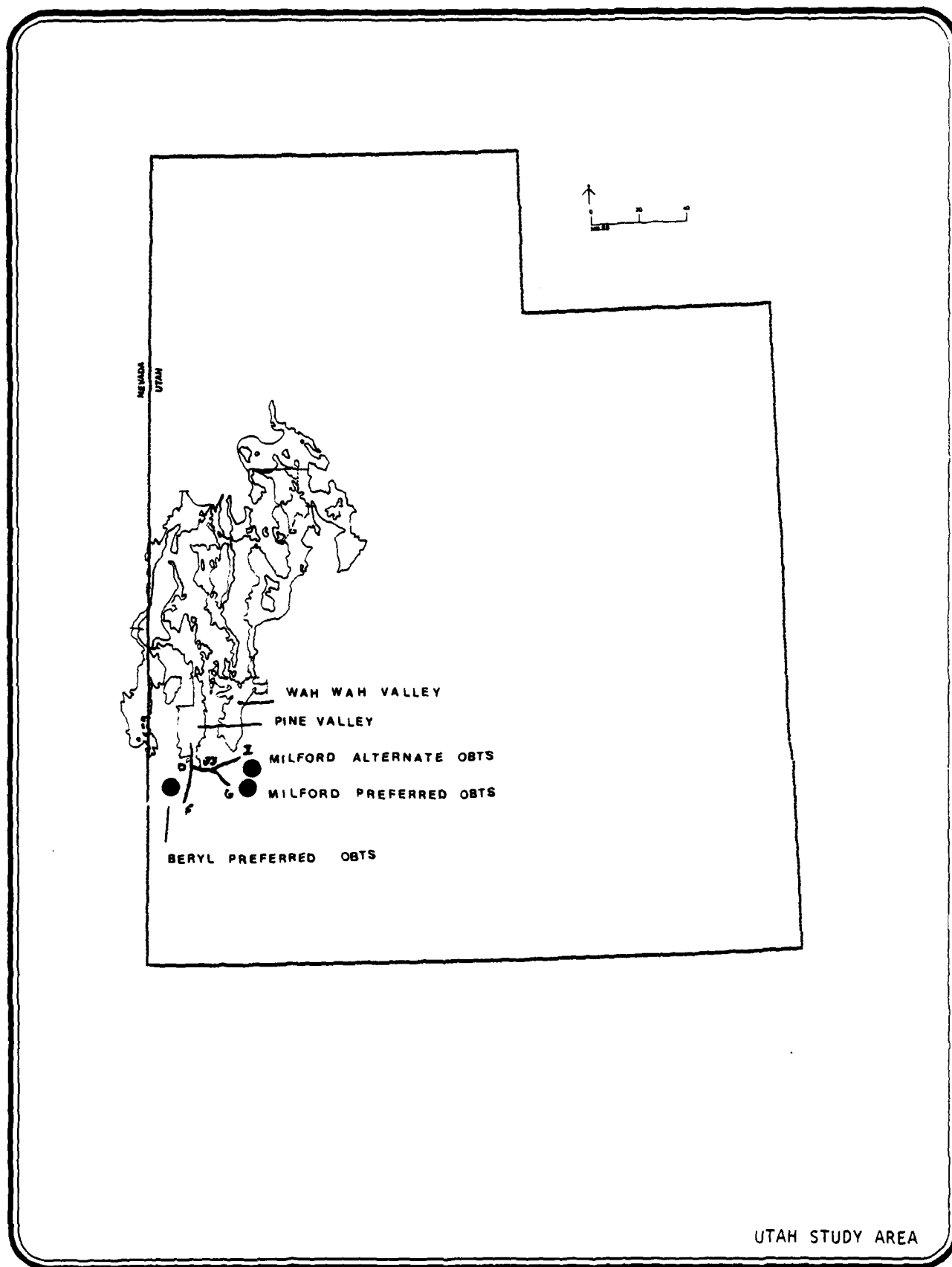


FIGURE 1-2

discusses data for the Utah OBTS and DTN areas. Section 6.0 contains conclusions, and Section 7.0 lists the references cited. Appendices contain trapping, bird census, releve quadrat vegetation data and wildlife data for all of the sites, and a list of preparers.

## 2.0 BACKGROUND

Background information concerning biological resources on the Operational Base (OB) areas, and results of a very preliminary field reconnaissance survey, are summarized in a report published in early 1981 by Fugro Northwest, Inc. (now Ertec Northwest, Inc.). A more in-depth field reconnaissance was later made of these same areas by EDAW (1981). The OB areas are adjacent to the OBTS and DTN areas studied in this report, and the habitats, wildlife and vegetation of both areas are very similar. Because background information on the expected wildlife and vegetation of the OBTS/DTN vicinity has been well summarized in the above studies, it will not be repeated here.

Existing information on biological resources in the vicinity of the OB and OBTS/DTN study areas was obtained from a review of the literature and from communications with state and federal agencies, other state and local organizations, and private individuals. Because a large number of species occur in the vicinity of the study areas, it was necessary to concentrate efforts primarily on those species and habitats that state and federal agencies consider important or sensitive. Threatened and endangered plant and animal species as listed in the Federal Register (1980a, 1980b) are considered important, as are furbearers, raptors, and game animals. Specific concerns regarding wildlife and lists of sensitive species and habitats were obtained from the Nevada Department of Wildlife and the Utah Department of Natural Resources. Other listings of sensitive species compiled by agencies or organizations such as the Northern Nevada Native Plant Society, the Utah Native Plant Society, the Nevada Fish and Game Commission, and

the U.S. Fish and Wildlife Service were also obtained and taken into consideration.

Emphasis on these species does not mean that other species were considered unimportant; it is recognized that each organism in the ecosystem plays an important role. But these species were felt to deserve additional prominence, due to their scarcity and/or usefulness to man.

### 3.0 METHODOLOGY

Biological surveys were conducted for four OBTS and 96 miles of DTN in Nevada and Utah. The OBTS were large, polygonal areas, while the DTN consisted of linear, variable-width corridors. Because of this difference, there was some variation in sampling methodology, although an attempt was made to standardize methods as much as possible while still preserving flexibility. All biological resources were inventoried, but a special attempt was made to obtain information on threatened, endangered, or sensitive species and unique habitats.

#### 3.1 AREA SURVEYED

The OBTS and DTN study areas were mapped on 1:62,500 (1 inch = 1 mile) scale topographic maps. Layout personnel previously classified segments of the DTN corridor as being fully restricted or non-restricted, depending on topographic or land use constraints, projected MX facility locations and other factors. These segment classifications were marked on the maps for each side of the DTN center line, along with land ownership information.

In segments considered restricted on both sides, the biological study area was limited to 75 feet on either side of the surveyors' stakes that marked the center line of the DTN. In areas where the DTN was expected to follow the existing road, an area extending 75 feet to each side of the existing roadway was sampled. In non-restricted areas, the sample area could be extended up to a mile on either side of the center line or the existing road. This corridor width provided flexibility in the actual road location; if discovery of a biological

or cultural resource was made in one area, it would then be possible to sample adjacent areas and to locate a more acceptable route for the DTN.

The area biologically surveyed for the OBTS sites was considerably larger than the area expected to be directly impacted by the OBTS. A buffer zone approximately one mile wide was surveyed outside the perimeter of each site to allow for indirect impacts during facility construction or operation.

### 3.2 VEGETATION SAMPLING

Since it was not known which portions of the OBTS would accommodate which activities, the relative degree of impact on individual areas of the OBTS could not be estimated. Emphasis was therefore placed on understanding the site as an ecosystem by determining the various habitats and organisms present in each area, rather than attempting to study scattered portions of the site in great detail.

The sampling methodology was a modification of the stratified random sampling technique. This method allowed data to be obtained for all major habitat areas, while ensuring that information would also be obtained for each section of OBTS or each linear mile of the DTN, regardless of habitat.

Because of the large size of the study area, and time and budgetary limitations, releve quadrats were selected as a relatively quick and accurate method of obtaining quantitative vegetation data. Releve quadrats were placed in all observed habitats of the OBTS, DTN, and OBTS buffer zone. The general locations of the quadrats were randomly selected, although

care was taken to place the quadrat within representative habitat in each sample area.

Most of the vegetation in the study area was fairly low growing, and individual plants were quite small; a 5 by 5 meter releve quadrat was therefore felt to be large enough to provide a representative sample of vegetation for the area. In the Joshua tree association in northern Delamar Valley, and in the pinyon-juniper areas of Utah, a 10 by 10 meter quadrat was used because the larger quadrat was felt to provide a more unbiased coverage estimate when larger types of vegetation were involved.

The quadrat area was measured out, and the corners marked by red pin flags. All plant species within the boundary of the quadrat were listed, an estimate of average height to the nearest decimeter, percent cover (canopy cover relative to the area of the quadrat), and a stratum symbol describing the vegetation layer (tree, shrub, or herb) were noted for each species. Percent cover of litter, bare ground, and rock were also estimated. In areas of pinyon-juniper the branches were sometimes high above the ground, exposing the area beneath the tree. This area was categorized as litter, although the coverage was previously tabulated as tree cover. This resulted in a coverage of greater than 100 percent in these areas.

Associated plant species adjacent to the releve quadrats were also recorded for each vegetation association. For this reason, species not listed in the releve data of the appendix will occasionally appear on summary species lists in the text. Soil, disturbance, and topographic features were also noted.



One data sheet was completed for each releve quadrat, all releves were numbered, and their locations plotted on USGS 7.5 minute topographic maps or, if these were not available, on 15 minute maps.

Private land in the OBTS and DTN areas was avoided. On BLM lands, releves were placed to obtain a minimum of 3-4 per section, and to include all major habitat areas.

In the DTN corridors, for segments marked as restricted on both sides of the corridor, sampling was confined to an area within 75 feet of each side of the staked center line. Only one releve was made per vegetation type per mile, on each side of the center line, unless unusual vegetation or habitats were found. In such areas, additional releves were made. In segments non-restricted on both sides of the corridor, the study area extended one mile on either side of the center line, and three releves were normally made on each side.

The majority of the DTN was restricted on only one side, so in areas of uniform habitat four releves were normally completed per mile: one on the restricted side, and three on the non-restricted side of the center line. Generally releves were located close to the center line, as opposed to the outer edges, as it was felt likely that the DTN would follow the surveyor's stakes unless there was sufficient reason to move it elsewhere within the corridor. If significant biological resources were located near the staked DTN route, or if vegetation associations in outlying areas differed from those of the center line area, then releves were also made for the areas farther from the center line.

Releve data were segregated by habitat type, synthesized into tables, and average cover and frequency were calculated for each species and habitat type. The original intent was to use this information in conjunction with aerial photography to obtain a vegetative map of the study areas; however, a change in the direction of the MX program has rendered this unnecessary at this time. Should a vegetative map be desired in the future, use of these data should make vegetative mapping relatively simple.

### 3.3 WILDLIFE OBSERVATIONS

Wildlife observations were made concurrently with the releves. However, because of the small size of the releves and the mobility of the wildlife, wildlife observations from adjacent releves and surrounding areas were combined on a single data sheet.

Particular attention was paid to the location of threatened, endangered or sensitive species. For these animals, the location of live animal sightings and sign such as shells, scat or tracks were recorded on topographic maps.

Wildlife activity varied according to time of day, and wildlife observed on the releves and in adjacent areas was not felt to completely represent organisms present in the various habitats. To supplement this information, small mammal trapping and bird censusing were also undertaken.

### 3.4 BIRD CENSUSING

Bird transects 1000 meters in length were made in each of the OBTS areas. These were placed in a variety of habitats in

order to obtain as wide a diversity of species as possible. Red flagging was placed every 100 meters and the sections of transect were numbered for data recording purposes. In pinyon-juniper, flagging was placed every 50 meters to aid in following the transect through the thick foliage.

A biologist with binoculars walked each bird transects for three consecutive mornings. Censusing was conducted early in the morning when birds are generally most active. It required 30 to 40 minutes to walk a transect.

While walking the transect, the biologist recorded the transect section number, the ~~number~~ and species of birds, and the estimated distance of the bird from the center line of the transect to a maximum of 50 meters on either side. The bird was also recorded as having been seen, heard, or flushed. Time of day, temperature, wind, and percent cloud cover were also recorded and transect locations marked on USGS 7.5 minute topographic maps. Data from the transects are summarized in Appendix A.

### 3.5 SMALL MAMMAL TRAPPING

To supplement observations made during the day, a 730 meter small mammal trapping transect was sampled in each area. Seventy-four collapsible Sherman live traps were placed at approximately 10-meter intervals along the transect and numbered from 1 to 74. Each trap was baited with rolled oats, opened in the evening, and checked in the morning for three consecutive days. Data from these transects are summarized in Appendix B.

Small mammal identification was based on Burt and Grossenheider (1976) and Hall (1946). For each animal trapped, the trap number, species, sex, and reproductive condition were recorded. Animals were weighed using 100 gram and 500 gram Pesola scales. The animals were then released and the traps closed until evening. In addition to the time of day, the temperature, wind, and percent cloud cover were also recorded. Transect locations were marked on USGS 7.5 minute topographic maps, together with the important animal sightings.

#### 4.0 DISCUSSION AND DATA SUMMARY: NEVADA

This section summarizes the biological findings in the Nevada OBTS, DTN, and connecting road. No in-depth data analysis is attempted at this time. However, additional information from releve quadrats, bird census transects, small mammal trapping transects, and wildlife observations is given in appendices A-D.

##### 4.1 COYOTE OBTS AND CONNECTING ROAD

The biological survey of the Coyote OBTS and connecting road was undertaken from August 2 through 13, 1981. Approximately 4 miles of road corridor, 7,000 acres of OBTS and a buffer zone approximately one mile in width around the OBTS perimeter were sampled. A total of 126 releve quadrats for vegetation, 3 small mammal trapping transects, 3 bird census transects, and numerous miscellaneous wildlife observations were made within the OBTS and along the connecting road. Trapping was also attempted in the wash which crosses the connecting road, but a flash flood washed away many of the traps on the first day, and trapping was discontinued. Results of the survey are discussed below.

##### 4.1.1 Overview of Vegetation

Five major vegetation associations were observed on the Coyote OBTS site. Of the 126 quadrats, there were 15 in a Mohave yucca (Yucca schidigera) association, 2 in a shadscale (Atriplex confertifolia) association, 2 in a holly-leaved saltbush (Atriplex hymenelytra) association, 76 in a creosote bush-white bursage (Larrea tridentata-Ambrosia dumosa) association,

and 31 in a wash association. Data obtained concerning the associations is given by site in Appendix C. Table 4-1 contrasts the associations, and Table 4-2 lists the vegetation species present on the site. Figure 4-1 shows quadrat locations.

All of the associations in the Coyote OBTS area contained more species of shrubs and succulents than forbs and grasses. The wash association had the highest average percent vegetative cover (23.6 percent) and the highest number of species recorded (49). The shadscale association contained the least vegetative cover (8.5 percent) and the fewest species recorded (5).

#### 4.1.2 Overview of Wildlife

Wildlife observations from the Coyote OBTS study area are summarized by vegetation association in Table 4-3, and site-specific data are contained in Appendix D.

Since wildlife are mobile and the releve quadrats are fairly small, wildlife observations obtained only from the releves would not have provided sufficient data on species composition. Observations were therefore made over larger areas surrounding a group of releve quadrats. Locations of these areas are shown in Figure 4-2.

Nine species of mammals, 9 species of birds, and 8 species of reptiles were detected during the survey. Coyotes (Canis latrans) and kit foxes (Vulpes macrotis) were the most common predators observed. Blacktailed jackrabbits (Lepus californicus), desert cottontails (Sylvilagus audubonii),

TABLE 4-1

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED ON THE COYOTE OBTS AND CONNECTING ROAD\*

Association Number of Quadrats	Mojave Yucca 15			Shadscale 2			Holly-leaved Saltbrush 2			Creosotebush- White Bursage 76			Wash Association 31		
	# Species	Ave. Cover (%)	# Species	# Species	Ave. Cover (%)	# Species	# Species	Ave. Cover (%)	# Species	# Species	Ave. Cover (%)	# Species	# Species	Ave. Cover (%)	# Species
Trees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shrubs/Succulents	13	16.7	4	8.0	6	9.0	15	15.2	33	21.8					
Forbs	8	0.3	0	0	1	0.5	7	0.4	11	0.5					
Grasses	4	0.1	1	0.5	1	1.5	5	0.1	5	1.4					
Total Vegetative Cover	25	17.0	5	8.5	8	11.0	27	15.7	49	23.6					
Bare Ground	—	11.6	—	42.0	—	5.0	—	14.7	—	27.5					
Rock/Gravel	—	68.9	—	46.0	—	82.0	—	67.4	—	44.4					
Litter	—	2.5	—	3.5	—	2.0	—	2.0	—	4.3					

\* Based upon 126 releve quadrats in the area

TABLE 4-2

## PLANT SPECIES OBSERVED ON THE COYOTE OBTS

Scientific Name	Common Name	Growth Form <sup>1</sup>	Habitat Type <sup>2</sup>
AGAVACEAE			
<u>Yucca schidigera</u>	Spanish dagger	S	MY,W
ASTERACEAE			
<u>Acamptopappus shockleyi</u>	Shockley goldenhead	S	MY,CW,W
<u>Ambrosia dumosa</u>	White bursage	S	MY,S,CW,W,HS
<u>Ambrosia eriocentra</u>	Ragweed	S	W
<u>Baileya multiradiata</u>	Desert baileya	F	MY,W, CW
<u>Brickellia sp.</u>	Brickellbush	S	W
<u>Dyssodia cooperi</u>	Cooper's dogweed	F	W
<u>Dyssodia pentachaeta</u>	Dogweed	F	MY
<u>Chrysothamnus viscidiflous</u>	Viscid rabbitbrush	S	W
<u>Chrysothamnus sp.</u>	Rabbitbrush	S	W
<u>Encelia frutecens</u>	Encelia	S	W
<u>Gutierrezia microcephala</u>	Snakeweed	S	W
<u>Hymenoclea salsola</u>	Cheeseweed	S	W
<u>Psilostrophe cooperii</u>	Whitestem paperflower	S	W
<u>Porophyllum gracile</u>	Slender poreleaf	F	W
<u>Stephanomeria pauciflora</u>	Wire lettuce	S	W
BRASSICACEAE			
<u>Descurainia sp.</u>	Tansy mustard	F	CW,W
<u>Sisymbrium sp.</u>	Tumble mustard	F	MY,CW
<u>Lepidium fremontii</u>	Desert pepperweed	F	CW,W
CACTACEAE			
<u>Echinocereus engelmannii</u>	Hedgehog cactus	S	MY
<u>Ferocactus acanthodes</u>	Ferocactus	S	MY,W
<u>Opuntia erinacea</u>	Prickly pear	S	MY,CW
<u>Opuntia basilaris</u>	Beavertail	S	CW
	prickly pear		
<u>Opuntia echinocarpa</u>	Strawtop	S	CW,W
	prickly pear		

<sup>1</sup> S = shrub; F = forb; G = grass

<sup>2</sup> MY = Mojave yucca; SH = shadscale; HS = hollyleaved saltbush;  
CW = Creosotebush-white bursage; W = Wash.



TABLE 4-2 (cont.)

Scientific Name	Common Name	Growth Form <sup>1</sup>	Habitat Type <sup>2</sup>
CHENOPODIACEAE			
<u>Atriplex canescens</u>	Fourwing saltbush	S	W
<u>Atriplex confertifolia</u>	Shadscale	S	SH
<u>Atriplex hymenelytra</u>	Desertholly saltbush	S	HS
<u>Atriplex polycarpa</u>	Saltbush	S	W
<u>Grayia spinosa</u>	Spiny hopsage	S	CW,W
EPHEDRACEAE			
<u>Ephedra nevadensis</u>	Nevada Mormon tea	S	MY,HS,CW,W
<u>Ephedra</u> sp.	Mormon tea	S	HS,CW,W
FABACEAE			
<u>Psoralea fremontii</u>	Psoralea	S	MY,HS,CW,W
<u>Psoralea</u> sp.	Psoralea	S	CW
<u>Acacia greggii</u>	Catclaw acacia	S	W
KRAMERIACEAE			
<u>Krameria grayi</u>	Ratany	S	MY,SH,HS,CW,W
<u>Krameria parvifolia</u>	Ratany	S	
LAMIACEAE			
<u>Salvia dorii</u>	Sage	S	W
<u>Salazaria mexicana</u>	Bladdersage	S	MY,W
MALVACEAE			
<u>Sphaeralcea ambigua</u>	Desert globemallow	F	MY,CW,W
<u>Sphaeralcea</u> sp.	Globemallow	F	MY,CW,W
OLEACEAE			
<u>Menodora spinescens</u>	Spiny menodora	S	CW
PLANTAGINACEAE			
<u>Plantago</u> sp.	Plantain	F	MY,W

TABLE 4-2 (cont.)

Scientific Name	Common Name	Growth Form <sup>1</sup>	Habitat Type <sup>2</sup>
POACEAE			
<u>Aristida purpurea</u>	Purple threeawn	G	MY,W
<u>Blepharidachne kingii</u>	King desertgrass	G	MY,CW,W
<u>Bromus rubens</u>	Red brome	G	MY,SH,HS,CW,W
<u>Bromus tectorum</u>	Cheatgrass	G	W
<u>Erioneuron puchellum</u>	Erioneuron	G	CW
<u>Hilaria jamesii</u>	Galleta grass	G	MY
<u>Hilaria rigida</u>	Dixiegrass	G	MY,CW,W
<u>Oryzopsis hymenoides</u>	Indian ricegrass	G	CW
<u>Stipa</u> sp.	Needlegrass	G	CW
POLYGONACEAE			
<u>Chorizanthe rigida</u>	Spineflower	F	CW
<u>Eriogonum inflatum</u>	Desert trumpet		
	erigonum	F	MY,HS,CW,W
<u>Eriogonum fasciculatum</u>	Flattop eriogonum	S	W
<u>Eriogonum</u> sp.	Wild buckwheat	F	W
ROSACEAE			
<u>Purshia tridentata</u>	Bitterbrush	S	W
<u>Prunus fasciculata</u>	Desert almond	S	W
RUTACEAE			
<u>Thamnosia montana</u>	Turpentine bush	S	MY,W
SOLANCEAE			
<u>Lycium</u> sp.	Wolfberry	S	W
ZYGOPHYLLACEAE			
<u>Larrea tridentata</u>	Creosotebush	S	MY,SH,CW,W

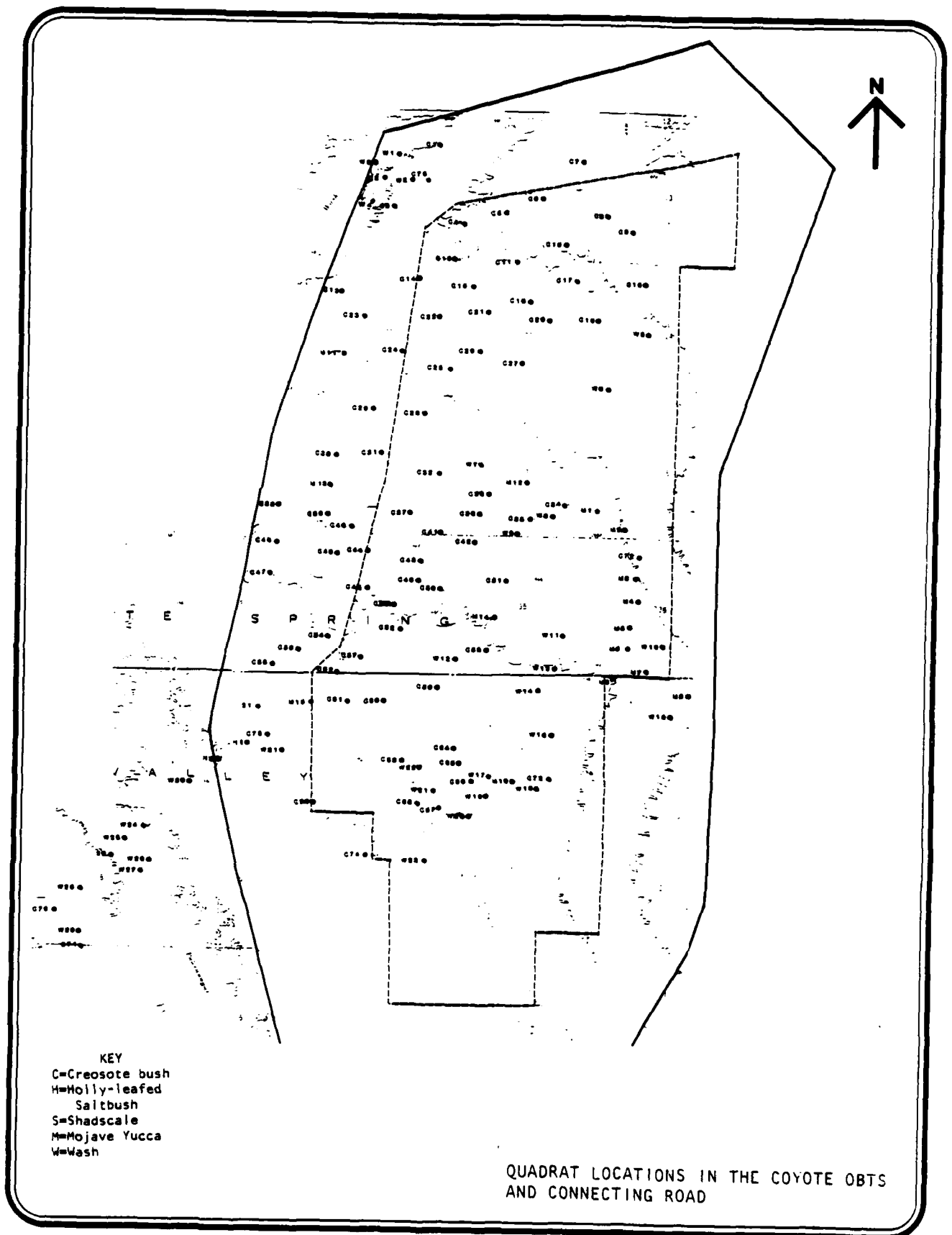


TABLE 4-3

WILDLIFE SIGN AND SIGHTINGS OBSERVED  
ON THE COYOTE OBTS

Species	Habitats Where Observed				
	MY	SH	HS	CW	W
MAMMALS					
Bat species					
(Unidentified)				X	
Desert cottontail					
( <u>Sylvilagus audubonii</u> )					X
Black-tailed jackrabbit					
( <u>Lepus californicus</u> )				X	X
White-tailed antelope squirrel					
( <u>Ammospermophilus leucurus</u> )	X			X	
Merriam's kangaroo rat					
( <u>Dipodomys merriami</u> )				X	
Kangaroo rat					
( <u>Dipodomys</u> sp)				X	
Mouse species					
(Unidentified)				X	
Coyote					
( <u>Canis latrans</u> )				X	
Kit fox					
( <u>Vulpes macrotis</u> )				X	
Badger					
( <u>Taxidea taxus</u> )				X	
BIRDS					
Quail species					
(Unidentified)					X
Mourning dove					
( <u>Zenaida macroura</u> )	X				
Hummingbird species					
(Unidentified)				X	
Western kingbird					
( <u>Lyranus verticalis</u> )					X
Rough-winged swallow					
( <u>Stelgidopteryx ruficollis</u> )				X	X
Cactus wren					
( <u>Campylorhynchus</u> <u>brunneicapillum</u> )				X	X
Thrasher species					
(Unidentified)				X	

MY = Mojave yucca; SH = Shadscale; HS = Hollyleaved saltbush;  
CW = Creosotebush-white bursage; W = Wash

TABLE 4-3 (cont.)

Species	Habitats Where Observed				
	MY	SH	HS	CW	W
Loggerhead shrike ( <u>Lanius ludovicianus</u> )				X	
Black-throated sparrow ( <u>Amphispiza bilineata</u> )	X			X	X
REPTILES					
Desert tortoise ( <u>Gopherus agassizi</u> )	X			X	
Zebra-tailed lizard ( <u>Callisaurus draconoides</u> )	X			X	
Leopard lizard ( <u>Crotaphytus wislizenii</u> )				X	X
Side-blotched lizard ( <u>Uta stansburiana</u> )	X			X	
Desert horned lizard ( <u>Phrynosoma platyrhinos</u> )				X	
Western whiptail ( <u>Cnemidophorus tigris</u> )	X			X	X
Lizard species (Unidentified)				X	X
Red racer ( <u>Masticophis flagellum piceus</u> )				X	

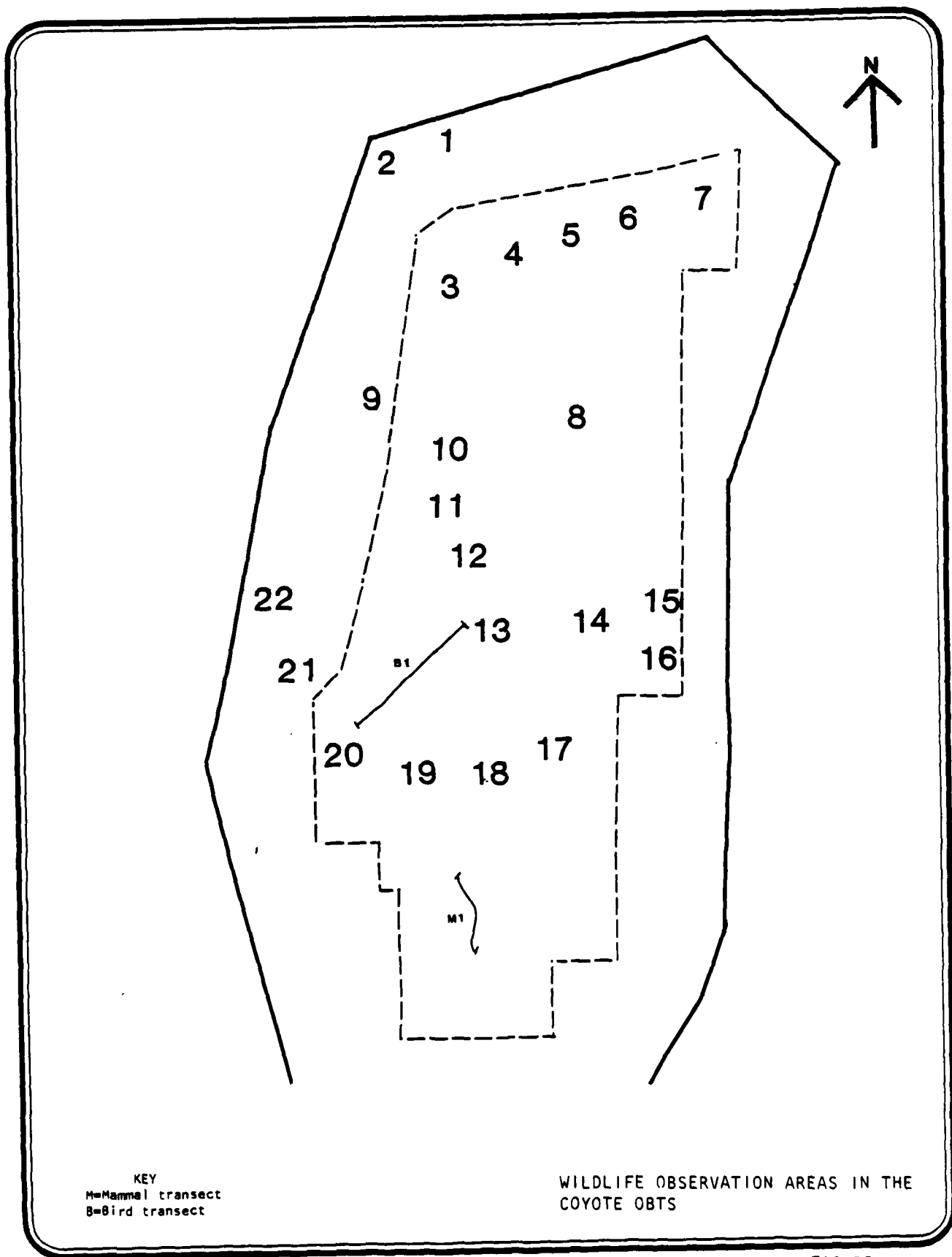


FIGURE 4-2

white-tailed antelope squirrels (Ammospermophilus leucurus) and kangaroo rats (Dipodomys sp.) were the most commonly observed prey species.

No raptors were observed in the Coyote OBTS area, and the only game birds observed were mourning doves (Zenaida macroura) and an unidentified species of quail. The bird observed on the greatest number of sites was the black-throated sparrow (Amphispiza bilineata).

The reptile most frequently observed was the side-blotched lizard (Uta stansburiana). A red racer (Masticophis flagellum piceus) was observed on the site, and the shells of desert tortoise (Gopherus agassizi) were observed in two locations.

#### 4.1.3 Species of Concern

No threatened or endangered animals were observed in the Coyote OBTS survey area, although the kit fox, a sensitive species (Molini 1980), was observed. Empty shells of the desert tortoise indicated the presence of this rare reptile species in the study area, but no live animals were observed.

Most birds in the area have protected status by special law such as the Migratory Bird Treaty Act or the Bald Eagle Act. A large number of species were observed including a number of raptors, which are generally of special concern to the state.

The cactus Ferocactus acanthodes, Echinocereus engelmannii and Opuntia basilaris were found during the survey. Because of their scarcity, cacti are often considered species of special concern, but these species were not identified as the

varieties listed as Currently Under Review in the Federal Register (1980a).

#### 4.2 Nevada DTN

The biological survey of the DTN was made concurrently with the Coyote OBTS survey, from August 2 through 13, 1981. The surveyed portion of the DTN extends from the vicinity of Pahroc Summit Pass to just south of the Lincoln County-Clark County boundary. Much of the corridor is adjacent to existing roadways. Approximately two-thirds of the road corridor was designated as fully restricted, with the remaining one-third designated as non-restricted.

Two hundred fourteen releve quadrats were sampled for vegetation along the 64 miles of Nevada DTN. Wildlife observations were compiled, but trapping and bird census transects were not conducted. Because of the linear distance involved, the difficulty of returning to the same site to trap or observe over a 3 day period, and the similarity of habitats along the DTN and within the OBTS, it was felt that the value of additional trapping would be minimal.

Results of the Nevada DTN survey are discussed below.

##### 4.2.1 Overview of Vegetation

The Nevada DTN corridor runs through a gradation of vegetation types ranging from the big sagebrush-rabbitbrush associations of the cold northern desert to the creosotebush-Joshua tree associations of the Mojave Desert. Six major associations were noted along the DTN corridor. Of the 214 releves, there were



49 located in a Joshua tree-Spring hopsage (Yucca brevifolia - Grayia spinosa) association, 23 in a winterfat-mixed shrub (Ceratoides lanata - Atriplex confertifolia - Grayia spinosa) association; 28 in a blackbrush-mixed shrub (Coleogyne ramossissima) association; 55 in a Creosotebush-bursage (Larrea tridentata - Ambrosia dumosa) association; 28 in an acacia-bursage-wash (Acacia gregii - Ambrosia dumosa) association; and 31 in a big sagebrush-rabbitbrush (Artemisia tridentata - Chrysothamnus sp.) association. Vegetative data obtained is given by site in Appendix C. Table 4-4 contrasts the associations and Table 4-5 lists the species observed. Figure 4-3 shows quadrat locations in the DTN corridor.

#### 4.2.2 Overview of Wildlife

Wildlife observations from the Nevada DTN corridor are listed in Table 4-6, and area-specific data are continued in Appendix D. Since wildlife are mobile and releve quadrats fairly small, wildlife observations were combined for each 3-mile road segment. Because the road covers a long linear area, this was felt to be preferable to grouping by vegetation associations, which might be scattered over many miles.

Nine species of mammals, 20 species of birds, and 7 species of reptiles were noted along the Nevada DTN corridor and are listed in Table 4-6. Mammal predator species included coyote (Canis latrans), kit fox (Vulpes macrotis), and badger (Taxidea taxus). Prey species included blacktailed jackrabbits (Lepus californicus), desert cottontail rabbits (Sylvilagus audubonii), and several rodents.

Several raptors were observed, including turkey vultures (Cathartes aura) and golden eagles (Aquila chrysaetos). Game

TABLE 4-4

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED ALONG THE NEVADA DTN CORRIDOR\*

Association Number of Quadrats	Joshua tree- Spring hopsage 49			Winterfat- Mixed shrub 23			Blackbrush- Mixed shrub 28			Creosotebush- Bursage 55			Acacia-bursage -Wash 28			Big sagebrush- Rabbitbrush 31		
	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)
Trees	1	3.9	0	0.0	1	0.6	1	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Shrubs/Succulents	17	13.8	11	18.2	23	22.0	23	18.1	23	18.1	27	15.2	16	18.2	16	18.2	16	18.2
Forbs	16	0.7	9	0.3	9	0.1	12	0.5	11	0.5	11	1.3	12	0.6	12	0.6	12	0.6
Grasses	10	8.6	6	2.1	11	4.8	10	1.2	6	1.0	6	1.0	6	5.0	6	5.0	6	5.0
Total	44	26.6	26	22.4	44	27.5	46	20.2	44	18.1	34	23.9	34	23.9	34	23.9	34	23.9
Vegetative Cover	—	41.2	—	64.6	—	31.9	—	27.8	—	7.5	—	22.7	—	22.7	—	22.7	—	22.7
Bare Ground	—	16.6	—	7.5	—	52.1	—	48.3	—	71.0	—	47.5	—	47.5	—	47.5	—	47.5
Rock/Gravel	—	11.8	—	5.4	—	4.3	—	3.8	—	3	—	6.2	—	6.2	—	6.2	—	6.2
Litter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

\* Based on 214 releve quadrats in the area.

TABLE 4-5

## PLANT SPECIES OBSERVED ALONG THE NEVADA DTN CORRIDOR

Scientific Name	Common Name	Growth Form <sup>1</sup>	Habitat Type <sup>2</sup>
<b>AGAVACEAE</b>			
<u>Yucca baccata</u>	Spanish dagger	S	JS, BM, CB, AW, BS
<u>Yucca brevifolia</u>	Joshua tree	T	JS, BM, CB
<u>Yucca schidigera</u>	Spanish dagger	S	CB, SW
<b>ASTERACEAE</b>			
<u>Acamptopappus shockleyi</u>	Shockley goldenhead	S	BM, CB, AW
<u>Ambrosia dumosa</u>	White bursage	S	CB, AW
<u>Ambrosia eriocentra</u>	Ragweed	F	JS
<u>Artemisia nova</u>	Black sagebrush	S	BS
<u>Artemisia spinescens</u>	Spiny sagebrush	S	JS, WM, BM, BS
<u>Artemisia tridentata</u>	Big sagebrush	S	JS, BS
<u>Baileya multiradiata</u>	Desert bailey	F	BM, CB, AW
<u>Baileya sp.</u>	Baileya	F	JS, AW
<u>Bebbia juncea</u>	Rush bebbia	F	AW
<u>Brickellia sp.</u>	Brickellbush	S	BS
<u>Chrysothamnus greenei</u>	Greene's rabbitbrush	S	JS, WM, BM
<u>Chrysothamnus viscidiflorus</u>	Viscid rabbitbrush	S	JS, BM, BS
<u>Chrysothamnus sp.</u>	Rabbitbrush	S	JS, WM, BS
<u>Dyssodia cooperi</u>	Cooper's dogweed	F	JS
<u>Dyssodia pentachaeta</u>	Firehair dogweed	F	CB, AW
<u>Encelia frutecens</u>	Encelia	S	BM, AW
<u>Gutierrezia microcephala</u>	Snakeweed	S	JS, AW, BS
<u>Hymenoclea salsola</u>	Cheeseweed	S	BB, CB, AW, BS
<u>Leucelene ericoides</u>	Leucelene	F	JS
<u>Machaeranthera canescens</u>	Aster	F	WM, BM, BS
<u>Machaeranthera sp.</u>	Aster	F	BS
<u>Porophyllum gracile</u>	Slender poreleaf	F	AW
<u>Stephanomeria pauciflora</u>	Wire lettuce	F	AW
<u>Tetradymia axillaris</u>	Horsebrush	S	JS, BM
<u>Tetradymia glabrata</u>	Horsebrush	S	JS, WM, BS
<u>Viguiera multiflora</u>	Showy goldeneye	F	CB

1 S = shrub; F = forb; G = grass

2 JS = Joshua tree-spring hopsage; WM = Winterfat-mixed shrub; BM = Blackbrush-mixed shrub; CB = Creosotebush-bursage; AW = Acacia-bursage-wash vegetation; BS = Big sagebrush-rabbitbrush.

TABLE 4-5 (cont.)

Scientific Name	Common Name	Growth Form <sup>1</sup>	Habitat Type <sup>2</sup>
<b>BETULACEAE</b>			
<u>Chilopsis linearis</u>	Desert willow	S	AW
<b>BORAGINACEAE</b>			
<u>Lappula redowskii</u>	Stickseed	F	BM
<u>Tequila nuttallii</u>	Nuttall coldenia	F	AW
<b>BRASSICACEAE</b>			
<u>Caulanthus pilosus</u>	Hairy wildcabbage	F	JS
<u>Caulanthus</u> sp.	Wildcabbage	F	JS
<u>Descurainia</u> sp.	Tansy mustard	F	CB,BS
<u>Lepidium fremontii</u>	Desert pepperweed	S	CB,AW
<u>Lepidium</u> sp.	Pepperweed	F	MS
<u>Sisymbrium altissimum</u>	Tumble mustard	F	JS
<u>Sisymbrium</u> sp.	Tumble mustard	F	BS
<b>CACTACEAE</b>			
<u>Echinocereus engelmannii</u>	Engelmannii hedgehog cactus	S	AW
<u>Ferocactus acanthodes</u> var. <u>lecontei</u>	Ferocactus	S	AW
<u>Opuntia basilaris</u>	Beavertail prickly pear	S	JS,AW
<u>Opuntia echinocarpa</u>	Strawtop prickly pear	S	AW,JS,BM,CB
<u>Opuntia erinacea</u>	Grizzlybear prickly pear	S	JS,WM,BM
<u>Opuntia</u> sp.	Pickly pear	S	BM,CB
<b>CAPPARIDACEAE</b>			
<u>Cleome</u> sp.	Beeplant	F	BS
<b>CHENOPODIACEAE</b>			
<u>Atriplex canescens</u>	Fourwing saltbush	S	BS,JS,WM, BM,CB
<u>Atriplex confertifolia</u>	Shadscale	S	WM,CB

TABLE 4-5 (cont.)

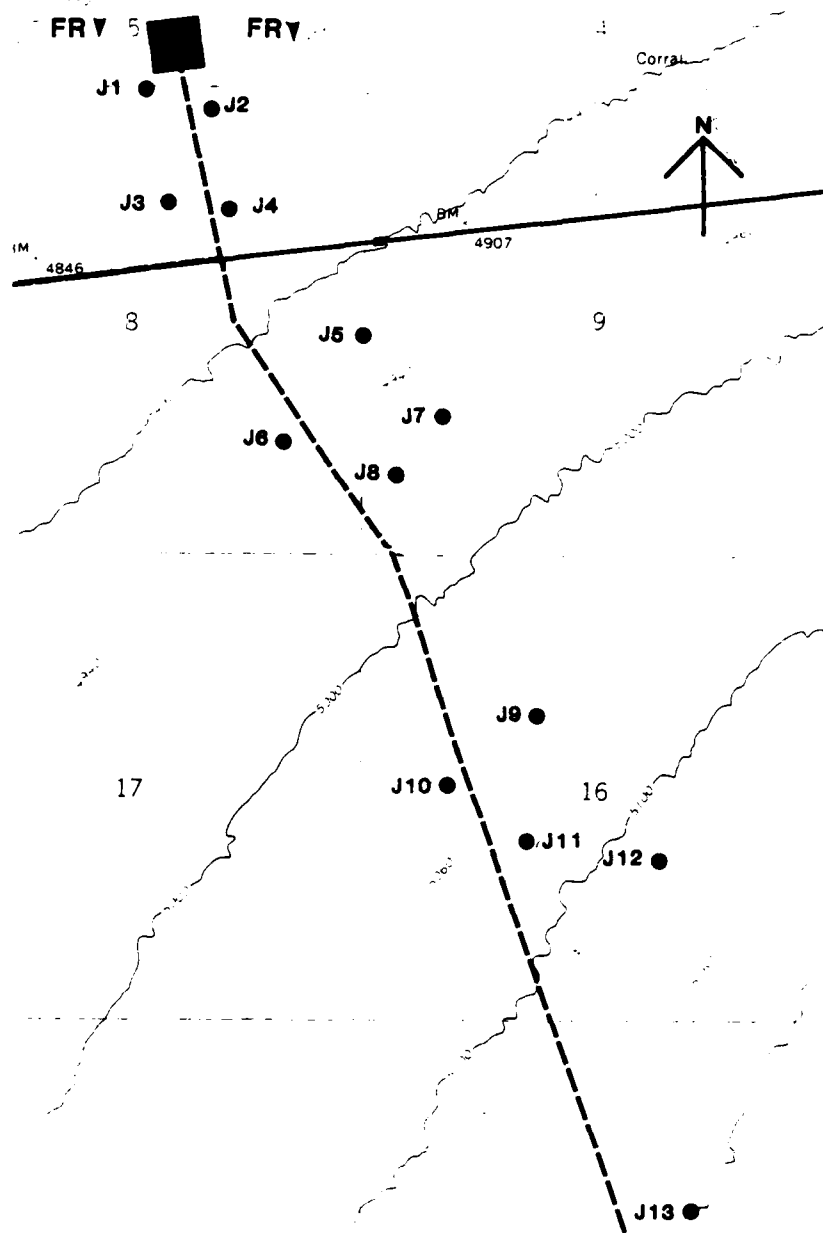
Scientific Name	Common Name	Growth Form <sup>1</sup>	Habitat Type <sup>2</sup>
CHENOPODIACEAE (cont.)			
<u>Atriplex polycarpa</u>	Cattle saltbush	S	CB,AW
<u>Atriplex</u> sp.	Saltbush	S	WM
<u>Ceratoides lanata</u>	Winterfat	S	JS,WM,BM,BS
<u>Grayia spinosa</u>	Spiny hopsage	S	JS,WM,CB,BM,BS
<u>Halogeton glomeratus</u>	Halogeton	F	WM
<u>Salsola iberica</u>	Russian thistle	S	WM,CB
<u>Salsola</u> sp.	Russian thistle	S	CB,AW
<u>Suaeda americana</u>	Seepweed	F	WM
EPHEDRACEAE			
<u>Ephedra nevadensis</u>	Nevada Mormon tea	S	JS,BM,CB,AW,BS
<u>Ephedra viridis</u>	Mormon tea	S	BS
<u>Ephedra</u> sp.	Mormon tea	S	BM,CB,AW
EUPHORBIACEAE			
<u>Euphorbia</u> sp.	Euphorbia	F	BS
FABACEAE			
<u>Acacia greggii</u>	Catclaw acacia	S	AW
<u>Astragalus lentiginosus</u>	Milkvetch	F	JS,MW,BS
<u>Astragalus</u> sp.	Milkvetch	F	JS,WM
<u>Psoralea fremontii</u>	Psoralea	S	BM,CB,AW
KRAMERIACEAE			
<u>Krameria</u> sp.	Ratany	S	BM,CB,AW
LAMIACEAE			
<u>Salazaria mexicana</u>	Bladdersage	S	BM

TABLE 4-5 (cont.)

Scientific Name	Common Name	Growth Form <sup>1</sup>	Habitat Type <sup>2</sup>
<b>MALVACEAE</b>			
<u>Sphaeralcea</u> <u>ambigua</u>	Desert globemallow	F	JS,WM,BM, CB,BS,AW
<u>Sphaeralcea</u> sp.	Globemallow	F	JS,BM,AW,BS
<b>OLEACEAE</b>			
<u>Menodora</u> <u>spinescens</u>	Spiny menodora	S	BM,CB,AW
<b>PLANTAGINACEAE</b>			
<u>Plantago</u> <u>insularis</u>	Desert plantain	F	CB,AW
<u>Plantago</u> sp.	Plantain	F	JS
<b>POACEAE</b>			
<u>Aristida</u> <u>purpurea</u>	Purple threeawn	G	JS,AW
<u>Blepharidachne</u> <u>kingii</u>	King desertgrass	G	JS,WM,BM, CB,AW
<u>Bromus</u> <u>rubens</u>	Red brome	G	JS,BM,CB, AW,BS
<u>Bromus</u> <u>tectorum</u>	Cheatgrass	G	JS,WM,BM, CB,BS
<u>Hilaria</u> <u>jamesii</u>	Galleta grass	G	JS,WM,BM,BS
<u>Hilaria</u> <u>rigida</u>	Dixiegrass	G	CB,BS
<u>Hordeum</u> <u>jubatum</u>	Foxtail barley	G	AW
<u>Muhlenbergia</u> <u>porteri</u>	Bush muhly	G	JS,BM
<u>Oryzopsis</u> <u>hymenoides</u>	Indian ricegrass	G	JS,WM,BM, CB,AW,BS
<u>Sitanion</u> <u>hystrix</u>	Bottlebrush squirreltail	G	JS,WM,BM
<u>Sitanion</u> sp.	Squirreltail	G	JS,WM,BM,BS
<u>Sporobolus</u> <u>cryptandrus</u>	Sand dropseed	G	BM,CB
<u>Sporobolus</u> sp.	Dropseed	G	JS
<u>Stipa</u> sp.	Needlegrass	G	BM
<b>POLYGONACEAE</b>			
<u>Chorizanthe</u> <u>rigida</u>	Spineflower	F	CB
<u>Eriogonum</u> <u>cernuum</u>	Nodding eriogonum	F	JS,WM

TABLE 4-5 (cont.)

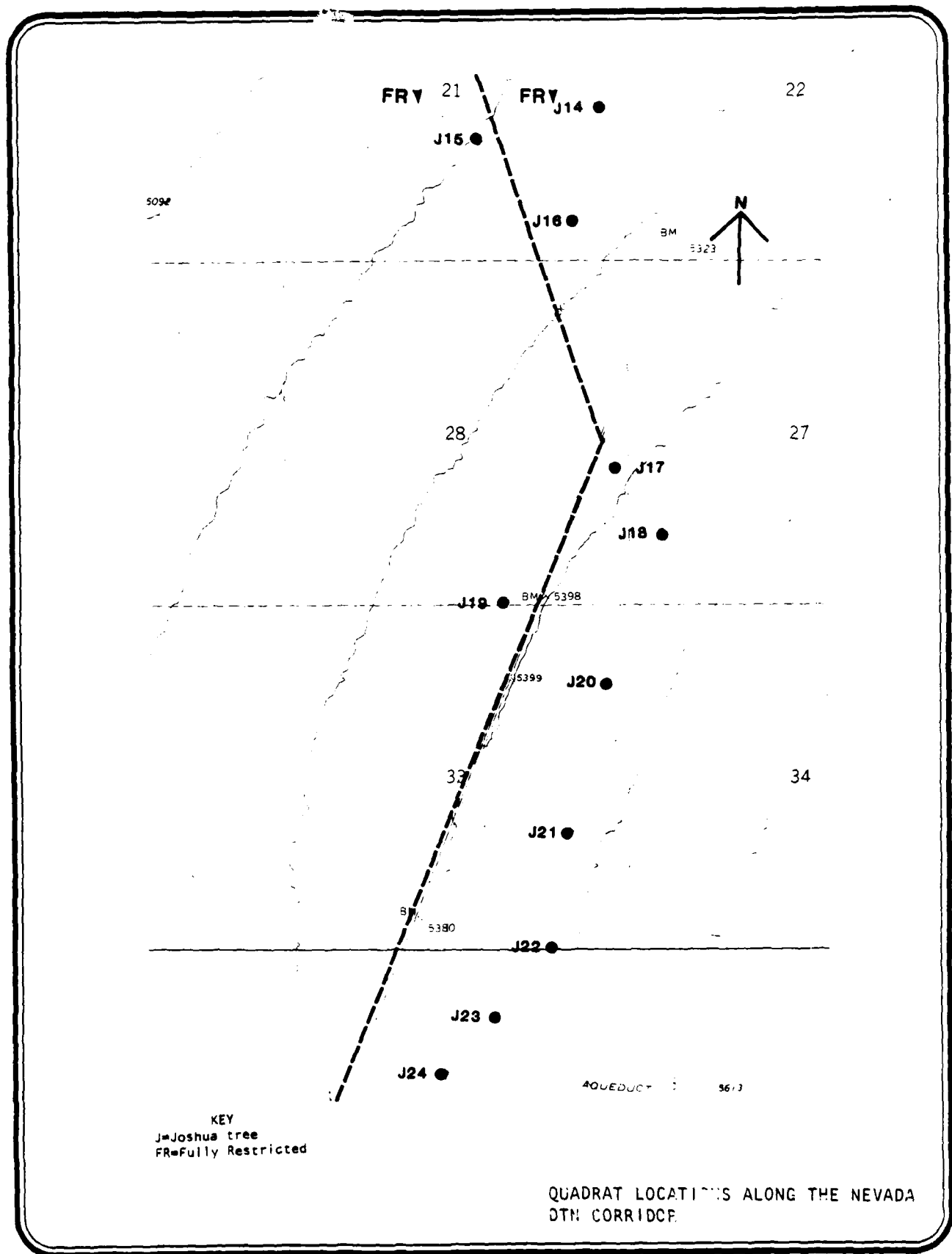
Scientific Name	Common Name	Growth Form <sup>1</sup>	Habitat Type <sup>2</sup>
POLYGONACEAE (cont.)			
<u>Eriogonum deflexum</u>	Skeletonweed eriogonum	F	JS
<u>Eriogonum fasciculatum</u>	Flat-top eriogonum	S	BM, CB, AW
<u>Eriogonum inflatum</u>	Desert trumpet		
	eriogonum	F	BM, CB, AW
<u>Eriogonum sp.</u>	Eriogonum	F	JS, WM, BM
			AW, BS
<u>Rumex hymenosepalus</u>	Canaigre	F	CB
ROSACEAE			
<u>Coleogyne ramosissima</u>	Blackbrush	S	BM, CB
<u>Cowania mexicana</u>	Cliffrose	S	BS
RUTACEAE			
<u>Thamnosia montana</u>	Turpentine bush	S	AW
SCROPHULARIACEAE			
<u>Penstemon palmeri</u>	Palmer's penstemon	F	JS
SOLANCEAE			
<u>Lycium andersonii</u>	Anderson wolfberry	S	BM
ZYGOPHYLLACEAE			
<u>Larrea tridentata</u>	Creosotebush	S	BM, CB, AW

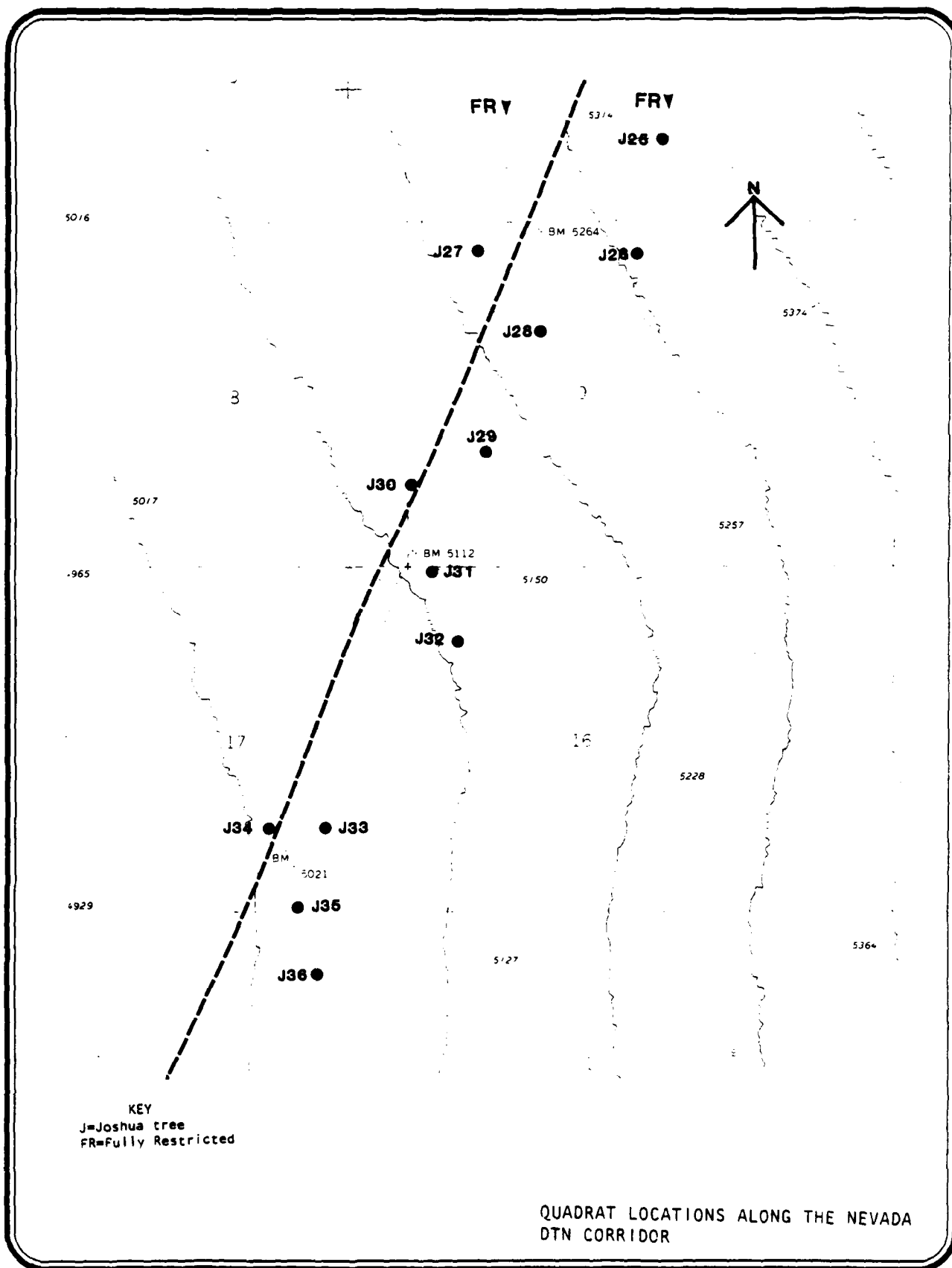


KEY  
 J=Joshua tree  
 FR=Fully Restricted

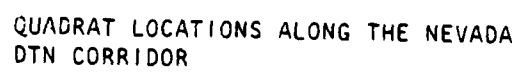
QUACRAT LOCATIONS ALONG THE NEVADA  
 DTN CORRIDOR



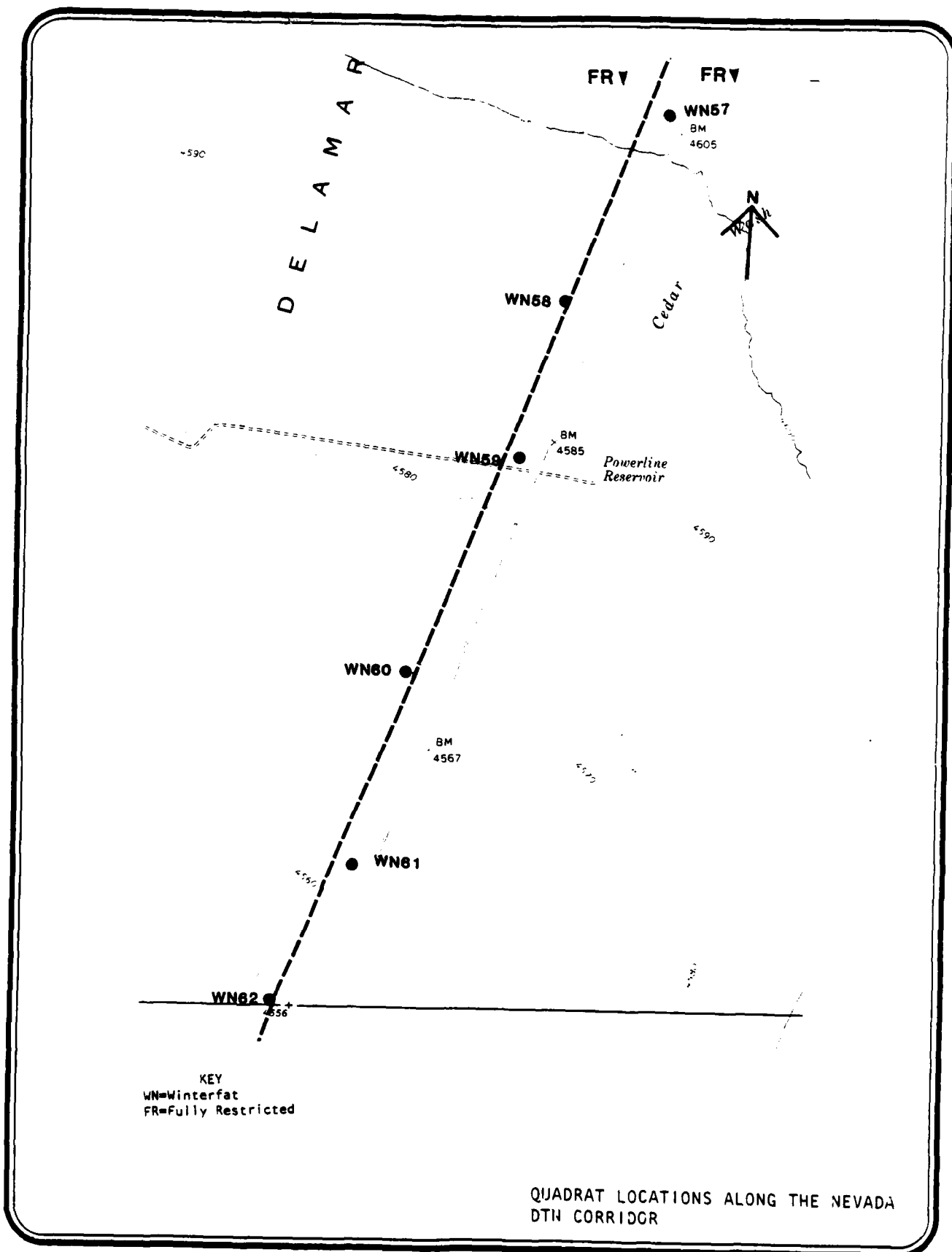


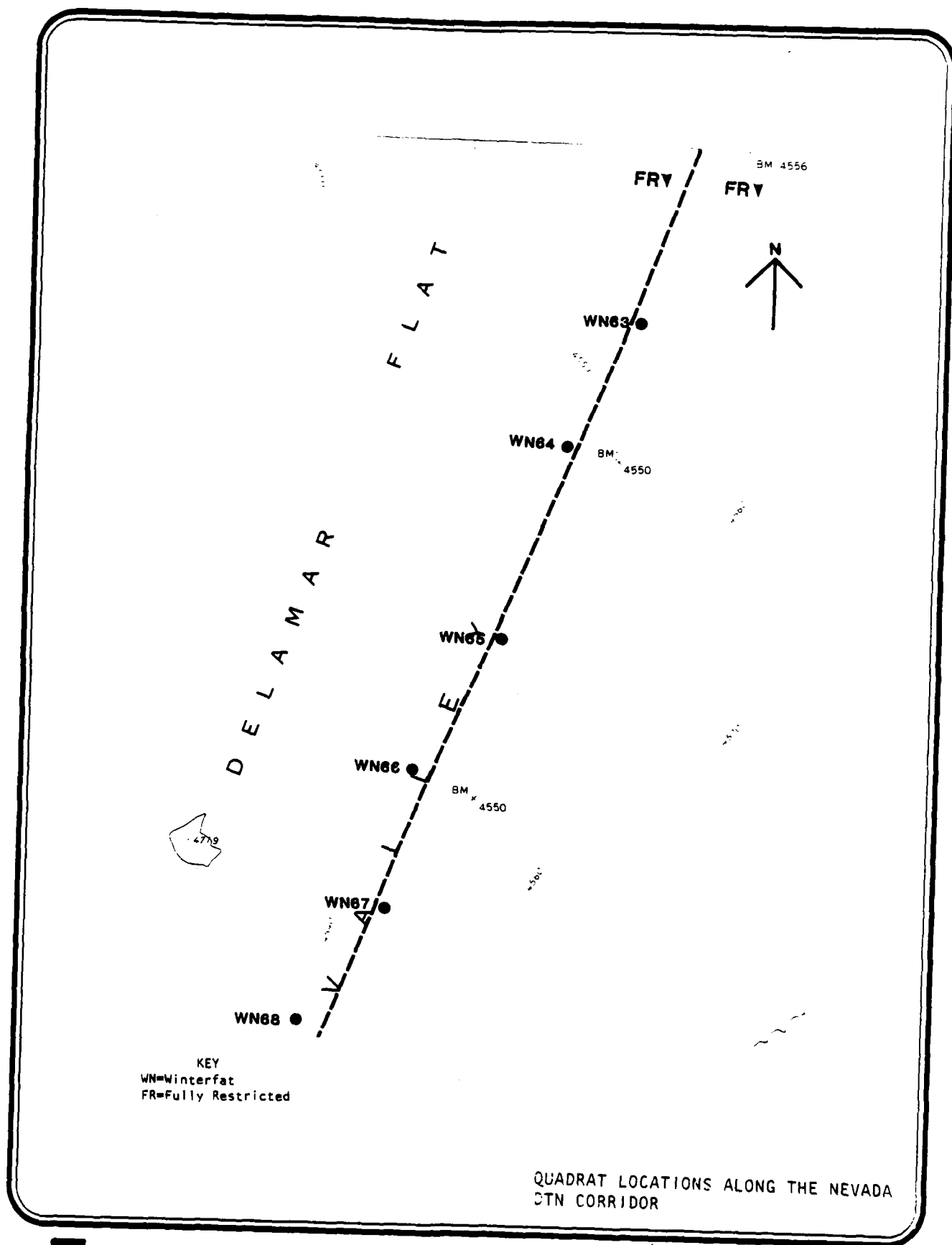






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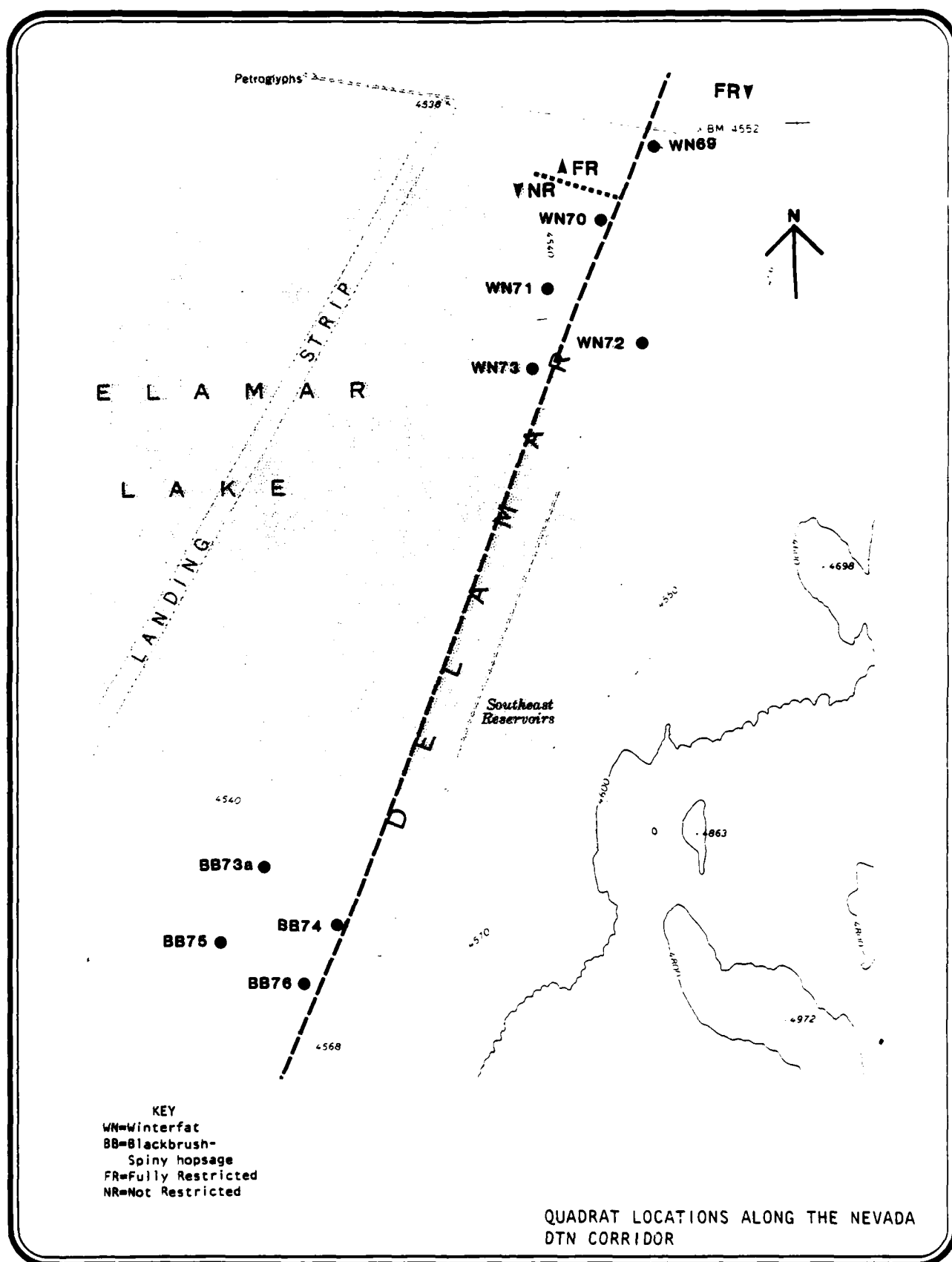
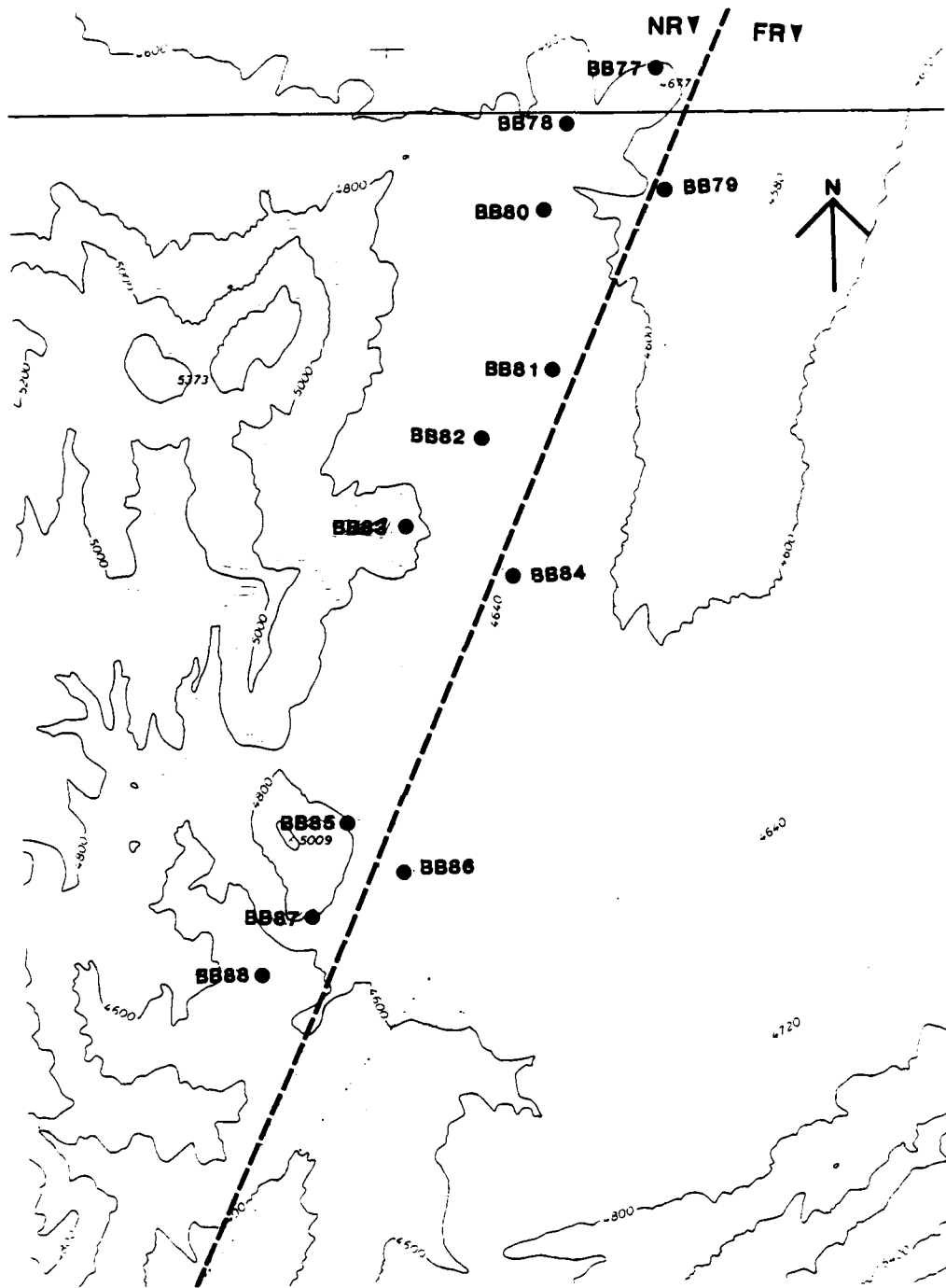


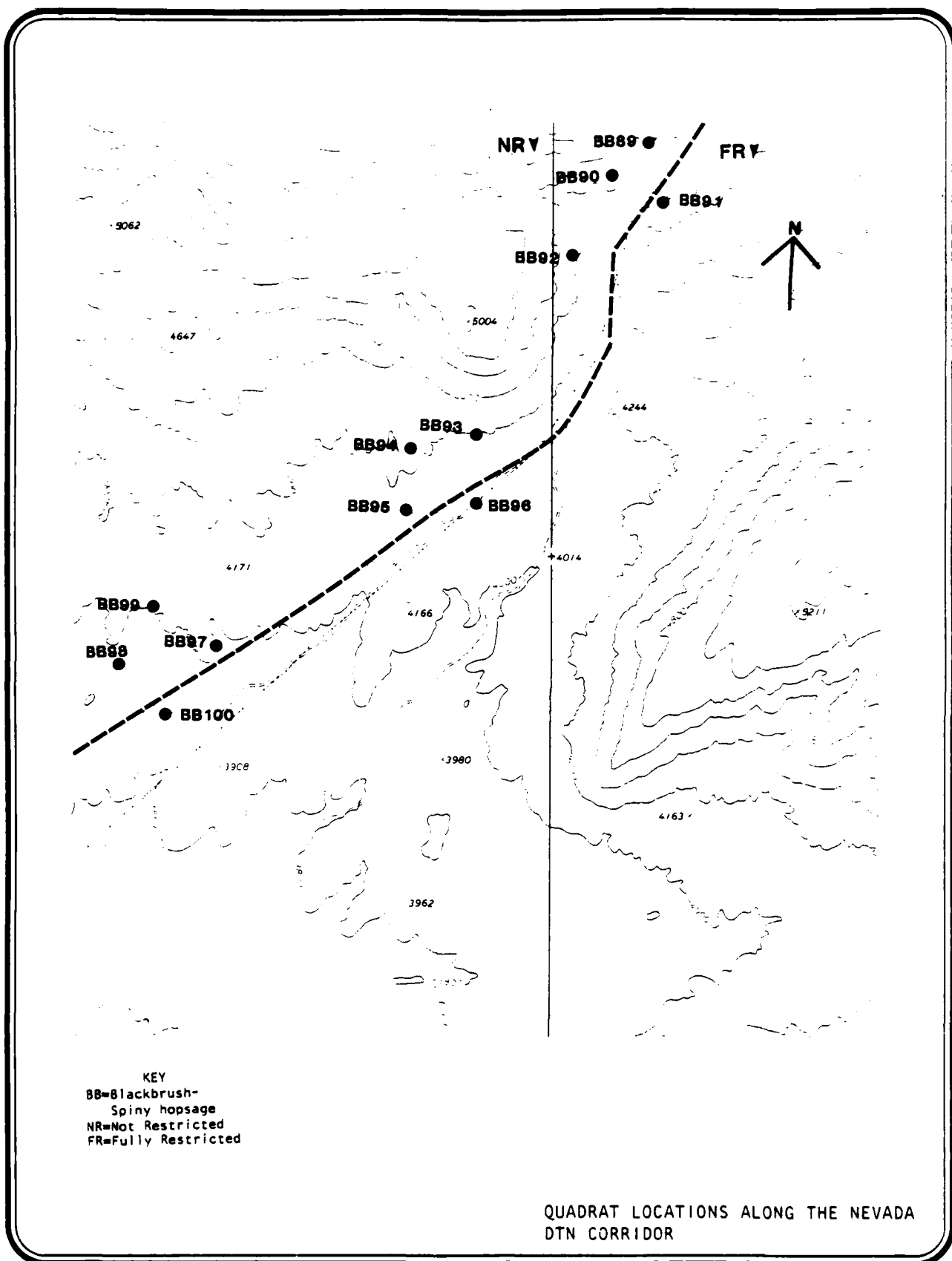
FIGURE 4-3h

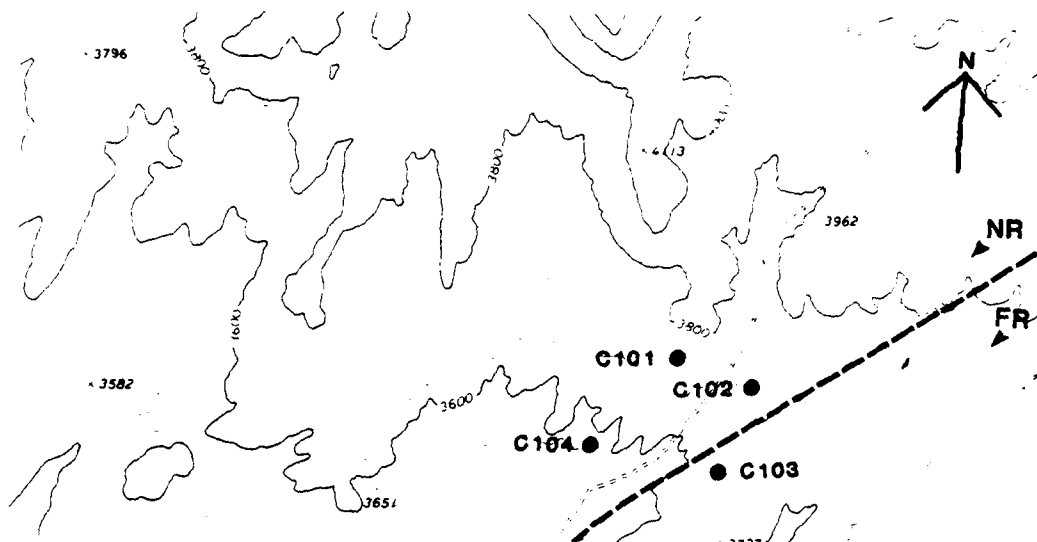


KEY  
 BB=Blackbrush-  
 Spiny hopsage  
 NR=Not Restricted  
 FR=Fully Restricted

QUADRAT LOCATIONS ALONG THE NEVADA  
 DTN CORRIDOR

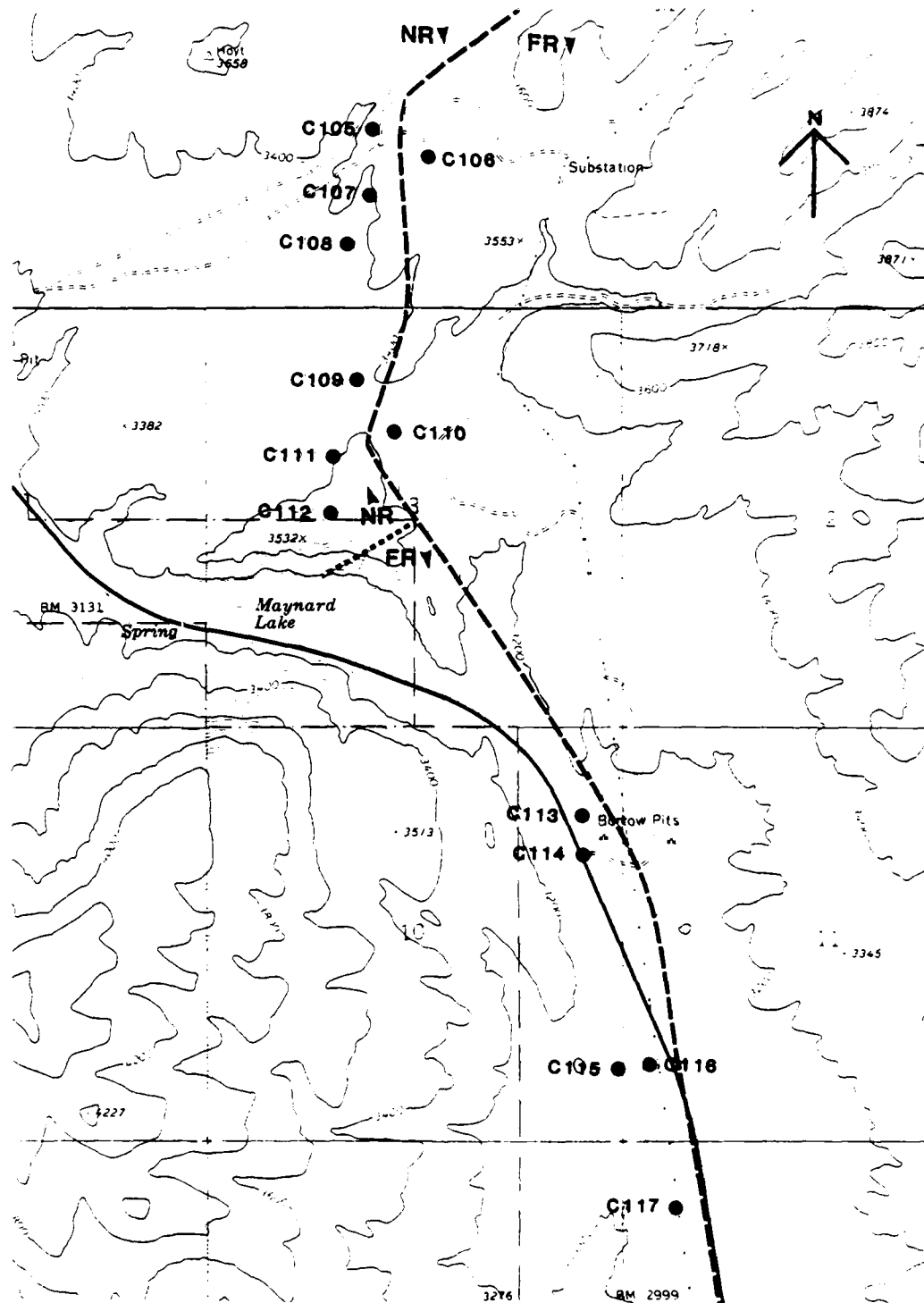






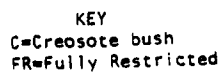
KEY  
 C=Creosote bush  
 NR=Not Restricted  
 FR=Fully Restricted

QUADRAT LOCATIONS ALONG THE NEVADA  
 DTN CORRIDOR



KEY  
 C=Creosote bush  
 NR=Not Restricted  
 FR=Fully Restricted

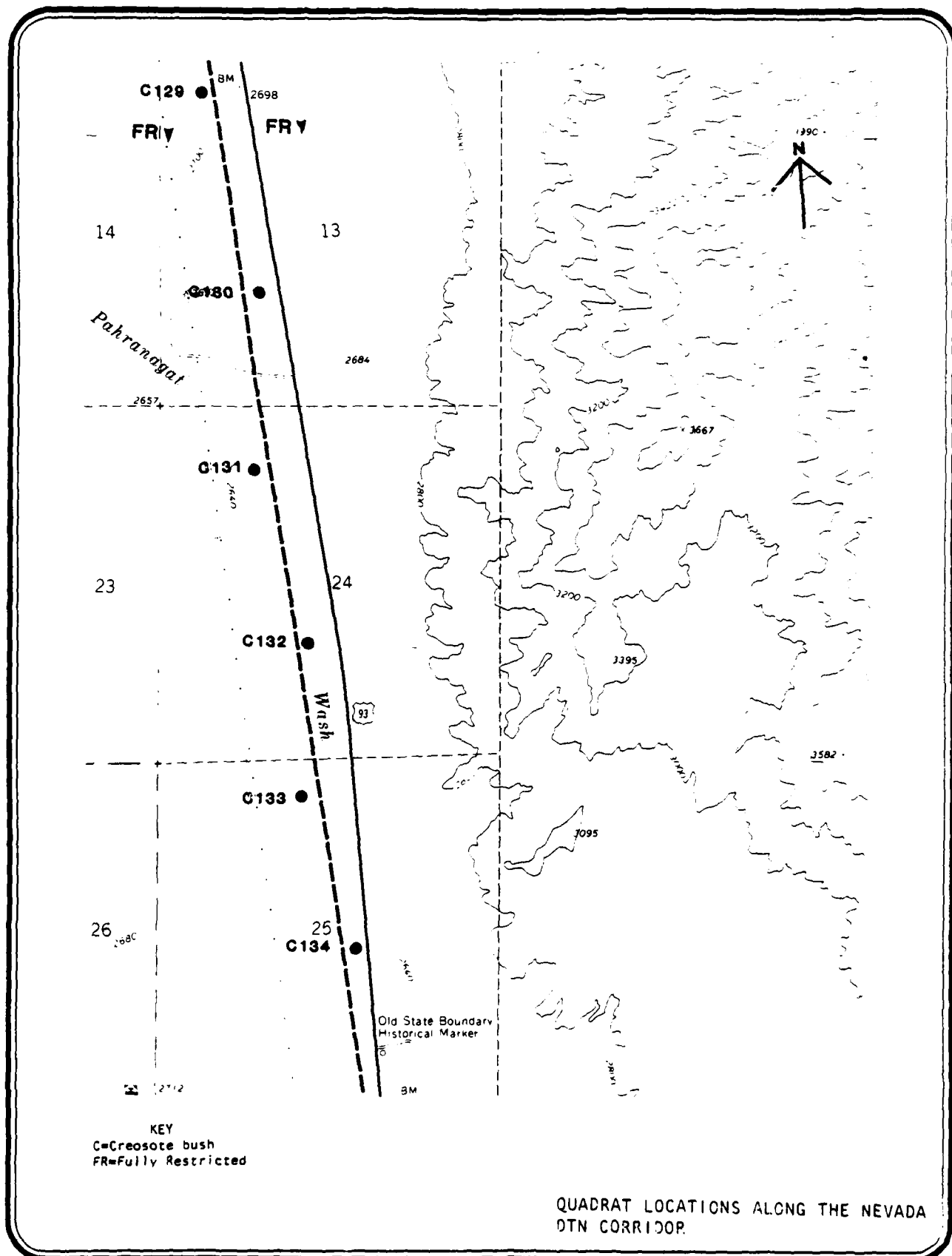
QUADRAT LOCATIONS ALONG THE NEVADA  
 DTN CORRIDOR



QUADRAT LOCATIONS ALONG THE NEVADA  
DTN CORRIDOR

FIGURE 4-3m

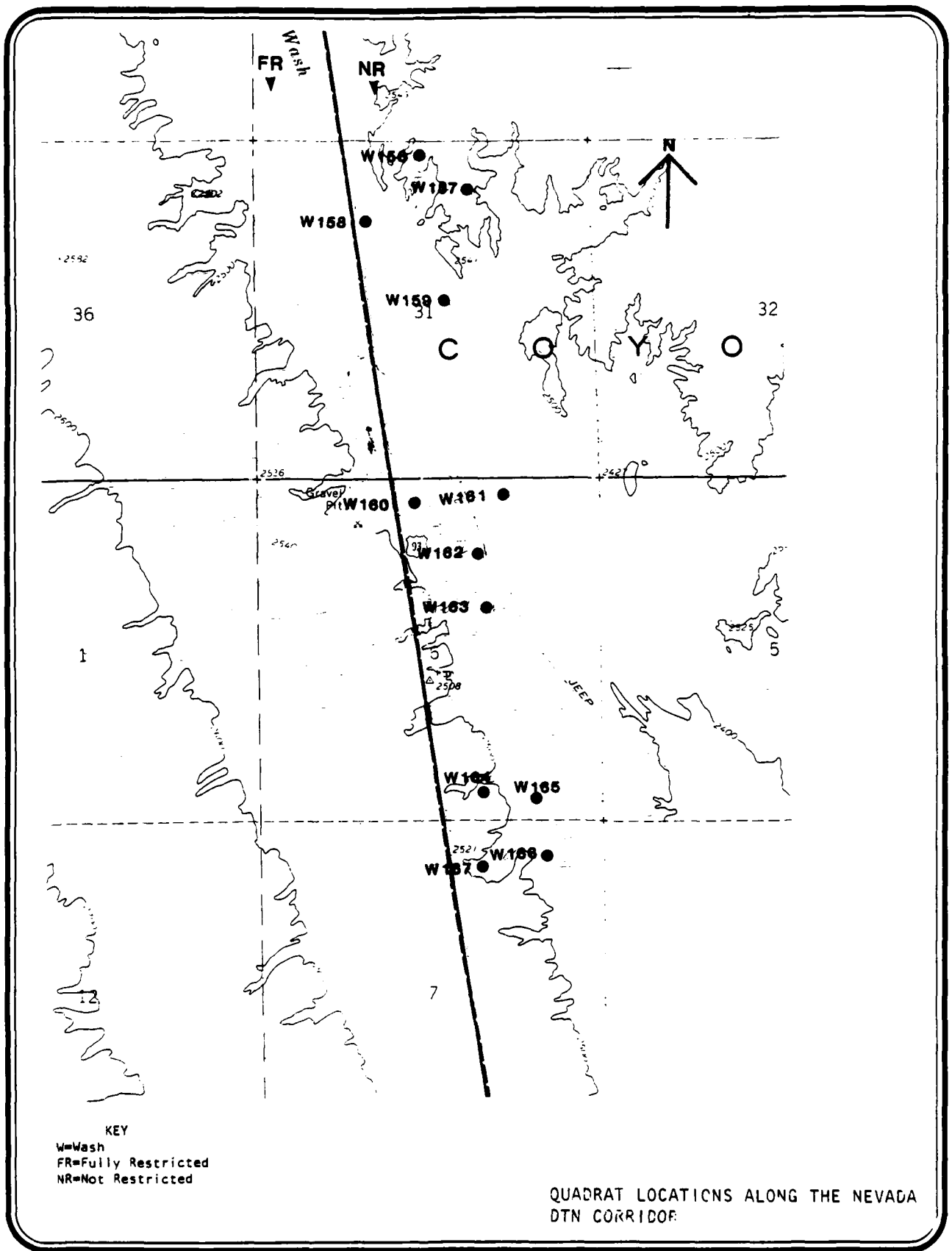












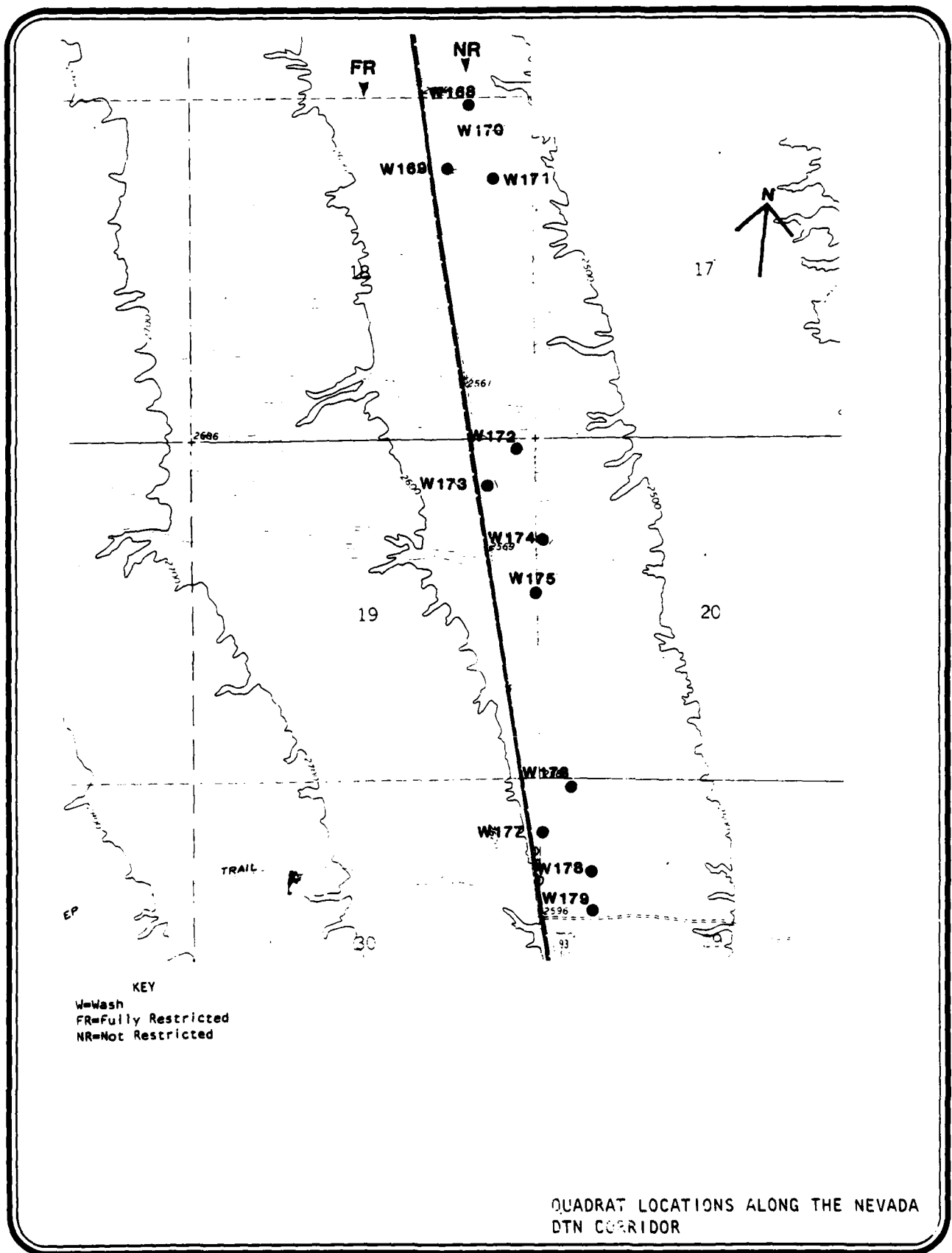
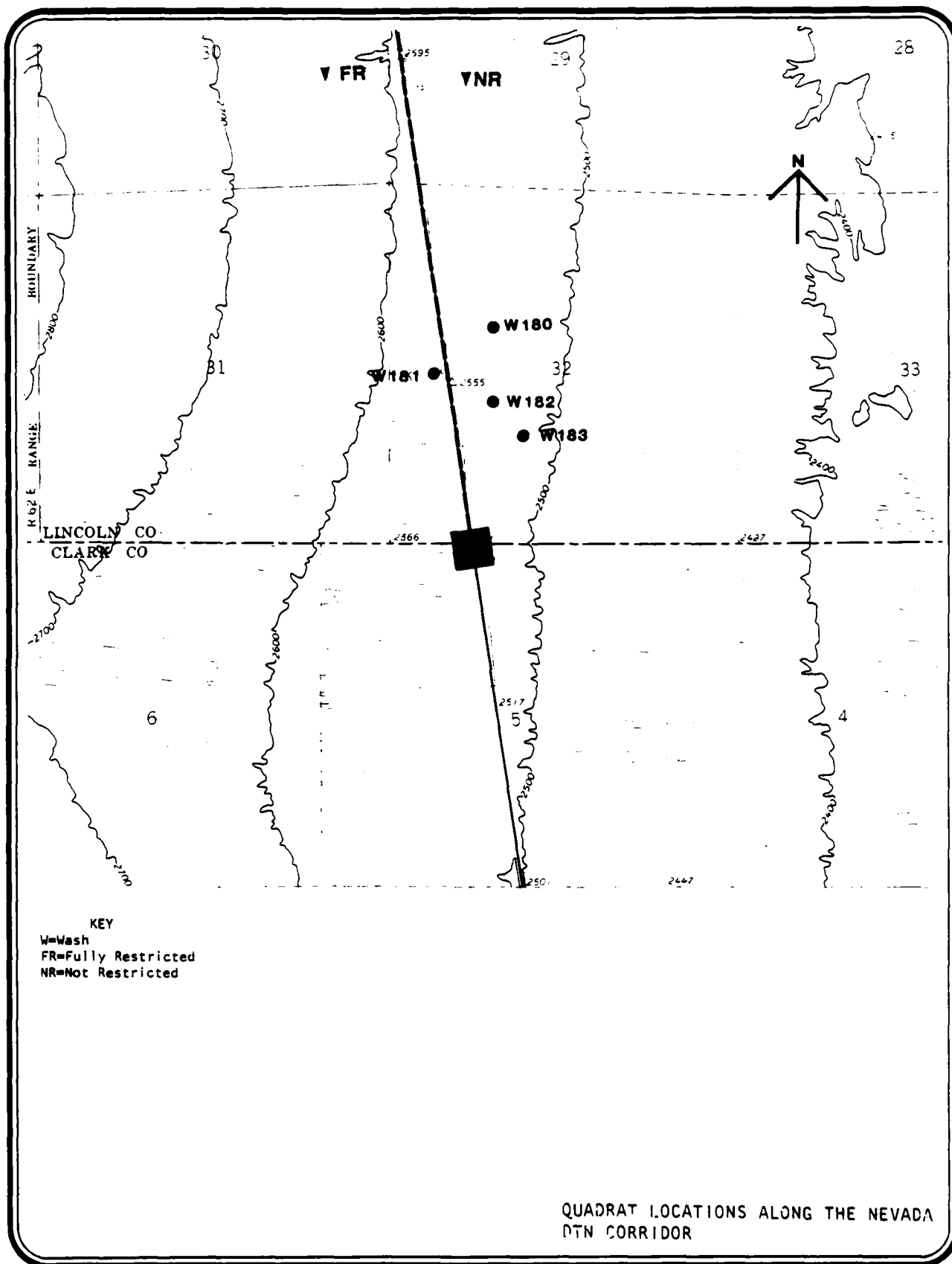


FIGURE 4-35



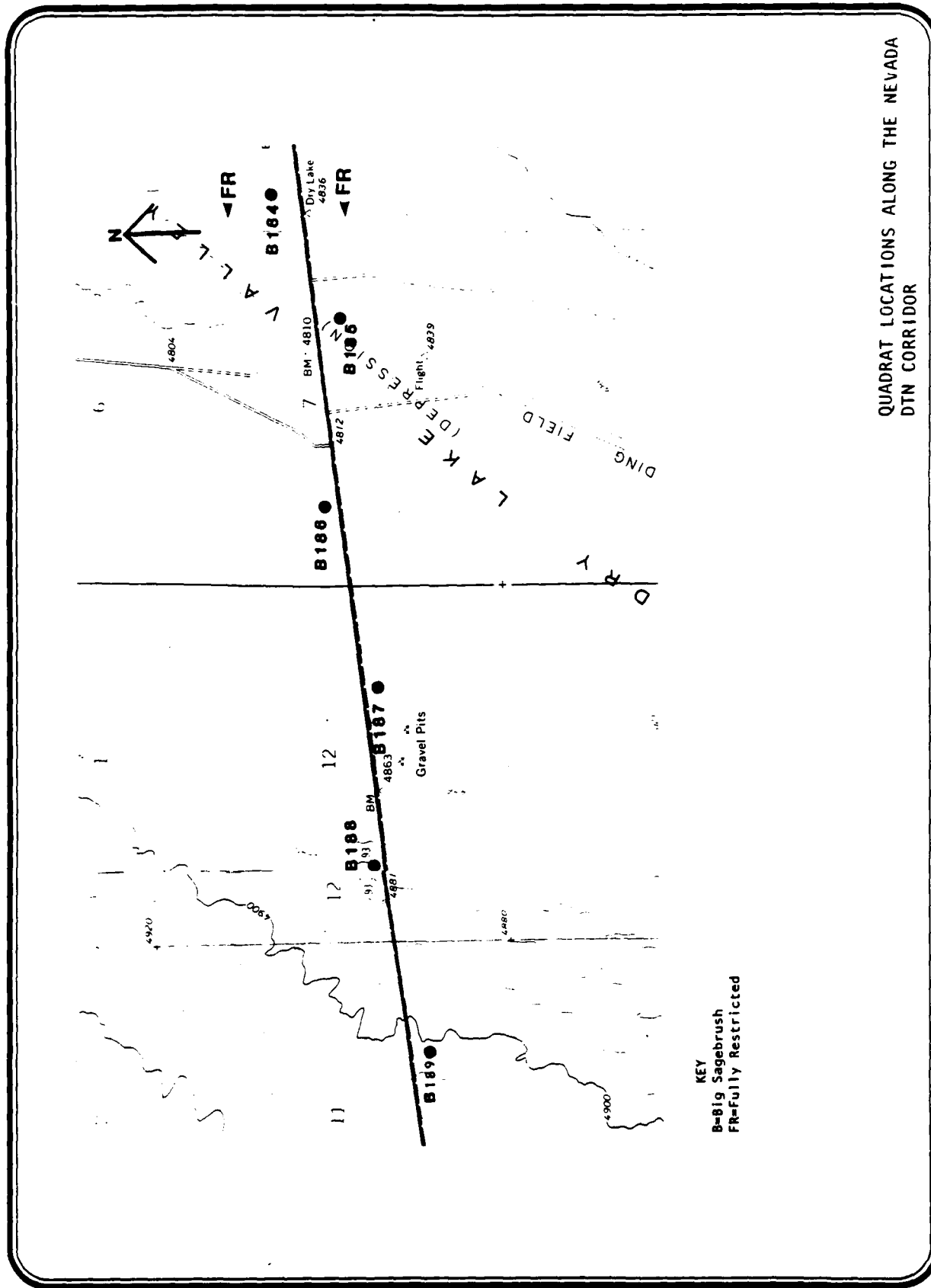
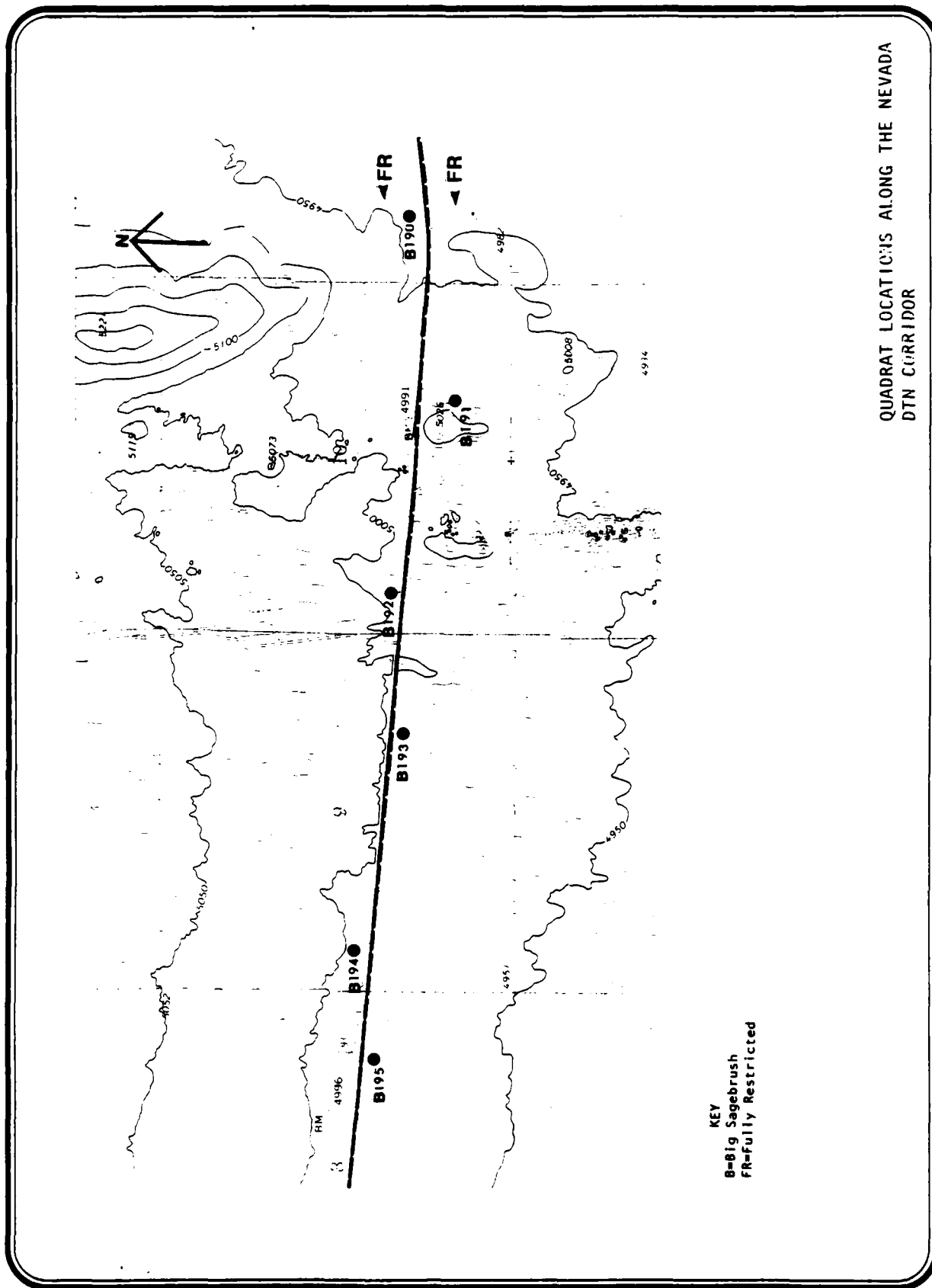


FIGURE 4-30



QUADRAT LOCATIONS ALONG THE NEVADA  
DTN CORRIDOR

FIGURE 4-3v

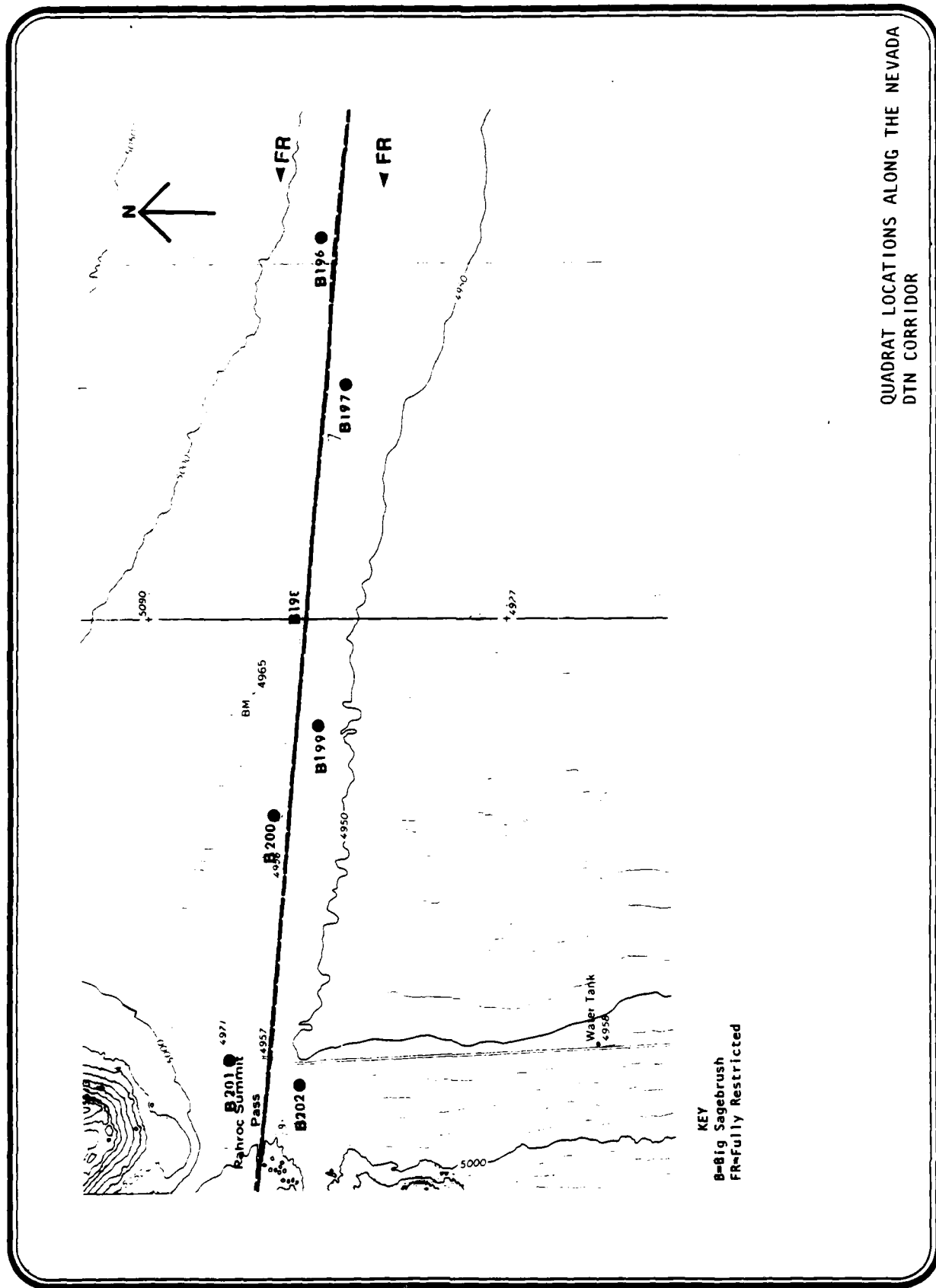


FIGURE 4-3w

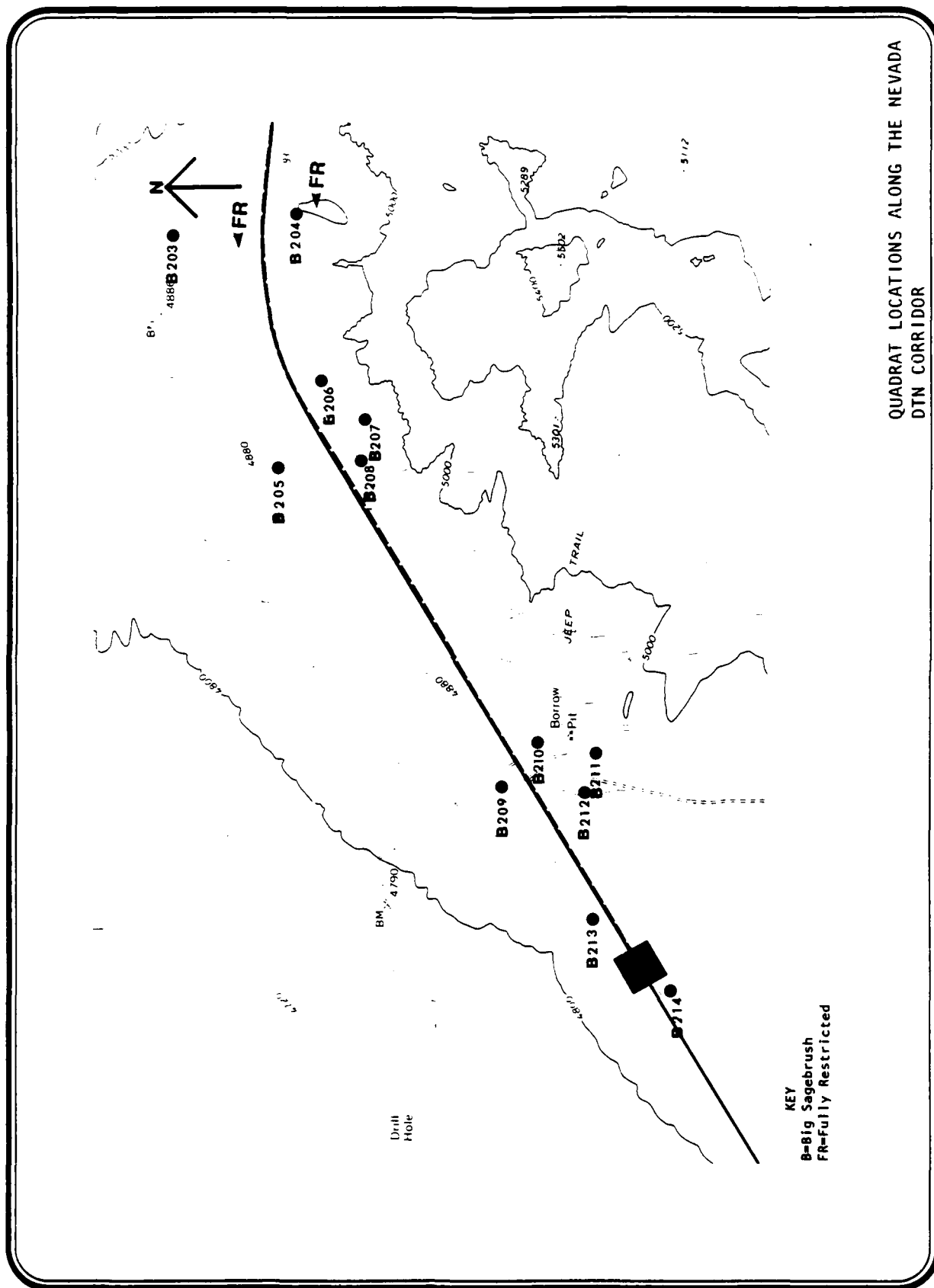


FIGURE 4-3x

TABLE 4-6

## WILDLIFE SIGN AND SIGHTINGS ALONG THE NEVADA DTN CORRIDOR

## MAMMALS

Desert cottontail	<u>Sylvilagus audubonii</u>
Black-tailed jackrabbit	<u>Lepus californicus</u>
White-tailed antelope squirrel	<u>Ammospermophilus leucurus</u>
Antelope squirrel	<u>Ammospermophilus</u> sp.
Kangaroo rat	<u>Dipodomys</u> sp.
Woodrat	<u>Neotoma</u> sp.
Coyote	<u>Canis latrans</u>
Kitfox	<u>Vulpes macrotis</u>
Badger	<u>Taxidea taxus</u>

## BIRDS

Turkey vulture	<u>Cathartes aura</u>
Redtailed hawk	<u>Buteo jamaicensis</u>
Swainson's hawk	<u>Buteo swainsoni</u>
Golden eagle	<u>Aquila chrysaetos</u>
American kestrel	<u>Falco sparverius</u>
Gambel's quail	<u>Lophortyx gambeli</u>
Mourning dove	<u>Zenaida macroura</u>
Roadrunner	<u>Geococcyx californianus</u>
Common nighthawk	<u>Chordeiles minor</u>
Western kingbird	<u>Tyrannus verticalis</u>
Horned lark	<u>Eremophila alpestris</u>
Common raven	<u>Corvus corax</u>
Cactus wren	<u>Campylorhynchus brunneicapillum</u>
Mockingbird	<u>Mimus polyglottos</u>
Sage thrasher	<u>Oreoscoptes montanus</u>
Bluegray gnatcatcher	<u>Polioptila caerula</u>
Loggerhead shrike	<u>Lanius ludovicianus</u>
Black-throated sparrow	<u>Amphispiza bilineata</u>
Unidentified sparrow	
Unidentified buteo	

## REPTILES

Zebra-tailed lizard	<u>Callisaurus draconoides</u>
Leopard lizard	<u>Crotaphytus wislizenii</u>
Western fence lizard	<u>Sceloporus occidentalis</u>
Side-blotched lizard	<u>Uta stansburiana</u>
Western whiptail lizard	<u>Cnemidophorus tigris</u>
Lizard species	Unidentified
Striped whipsnake	<u>Masticophis taeniatus</u>



birds observed included mourning dove (Zenaida macroura), and Gambel's quail (Lophortyx gambeli).

Reptiles included numerous lizards and one snake tentatively identified as a striped whipsnake (Masticophis taeniatus).

#### 4.2.3 Species of Concern

No threatened or endangered animal species were observed along the Nevada DTN corridor, although sign of kit fox, a sensitive species (Molini 1980), was noted.

Most birds in the area have protected status under special laws such as the Migratory Bird Treaty Act or the Bald Eagle Act. A large number of species were observed, including a number of raptors, a group of general concern to the state. Golden eagles (Aquila chrysaetos), were observed in two areas, and the redtailed hawk, Swanson's hawk, American kestrel and turkey vulture were also noted.

Cacti are often considered of special concern, and several species were found, including Echinocereus sp. and Opuntia basilaris. However, it is not believed that these are the varieties listed as Currently Under Review in the Federal Register (1980a).

## 5.0 DISCUSSION AND DATA SUMMARY: UTAH

This section summarizes the biological findings in the three Utah OBTS areas and the adjacent DTN segments. No in-depth data analysis is attempted at this time. However, additional information from releve quadrats, small mammal trapping transects, bird census transects and general wildlife observations is given in Appendices A, B, E, and F.

### 5.1 MILFORD PREFERRED OBTS

The biological survey of the Milford and Beryl OBTS areas and Utah DTN segments was undertaken from August 17 through September 29, 1981. Approximately 6000 acres of test site and a buffer zone approximately one mile in width around the perimeter of the Milford preferred site were sampled. A total of 122 releve quadrats for vegetation, 3 small mammal trapping transects, and 3 bird census transects were sampled within the area. Wildlife observations were also tabulated. Results of the survey are discussed below.

#### 5.1.1 Overview of Vegetation

Five major vegetation associations were observed on the Milford preferred OBTS site. Of the 122 quadrats, there were 7 in a pinyon-juniper (Pinus-Juniperus) association, 5 in a black sagebrush (Artemisia nova) association, 72 in a big sagebrush (Artemisia tridentata) association, 25 in a perennial grassland (Poaceae) association, and 13 in a wash association. Vegetative data are given by site in Appendix E. Table 5-1 contrasts the associations, and Table 5-2 lists the vegetation species present on the site. Figure 5-1 shows quadrat locations.

TABLE 5-1

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED  
ON THE MILFORD PREFERRED OBTS\*

Association Number of Quadrats	Pinyon-Juniper 7			Black Sagebrush 5			Big sagebrush 72			Perennial Grassland 25			Wash Areas 13		
	# Species	Avg. Cover (%)	# Species	# Species	Avg. Cover (%)	# Species	# Species	Avg. Cover (%)	# Species	# Species	Avg. Cover (%)	# Species	# Species	Avg. Cover (%)	# Species
Trees	1	23.1	0	0	0.0	0.0	1	0.0	1	1	4.0	1	1	3.1	
Shrubs/succulents	10	11.1	6	6	12.2	8	8	19.3	10	10	8.8	12	12	21.5	
Forbs	16	0.9	2	2	0.9	17	17	0.9	10	10	0.0	7	7	0.4	
Grasses	7	4.4	5	5	5.2	14	14	6.5	9	9	24.0	8	8	13.1	
Total	34	39.6	13	13	17.4	40	40	26.4	30	30	32.8	28	28	38.2	
Vegetative Cover	—	27.1	—	—	18.2	—	—	31.8	—	—	32.8	—	—	26.6	
Bare Ground	—	23.3	—	—	59.2	—	—	32.6	—	—	18.6	—	—	26.1	
Rock/Gravel	—	13.7	—	—	5.2	—	—	8.7	—	—	13.2	—	—	14.5	
Litter	—														

\* Based upon 122 releve quadrats in the area.

TABLE 5-2

PLANT SPECIES OBSERVED ON THE MILFORD  
PREFERRED OBTS

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
AMARANTHACEAE			
<u>Amaranthus graecizans</u>	Pigweed	F	D
ASTERACEAE			
<u>Ambrosia acanthicarpa</u>	Ragweed	F	BS, W, D
<u>Artemisia filifolia</u>	Sand sagebrush	S	BS
<u>Artemisia nova</u>	Black sagebrush	S	BLS, PJ
<u>Artemisia tridentata</u>	Big sagebrush	S	BS, PJ, W
<u>Chaenactis douglasii</u>	Douglas chaenactis	F	PJ, BS
<u>Chrysothamnus nauseosus</u>	Rubber rabbitbrush	S	W
<u>Chrysothamnus viscidiflorus</u>	Viscid rabbitbrush	S	PJ, BS, BLS PG, W
<u>Erigeron</u> sp.	Fleabane	F	PJ
<u>Gutierrezia sarothrae</u>	Snakeweed	S	S, PJ, BS, BLS, PG, W
<u>Hymenopappus filifolius</u>	Hymenopappus	F	BS
<u>Leucelene ericoides</u>	Leucelene	F	BS

<sup>1</sup> S = Shrub; F = Forb; G = Grass; Gl = Grasslike.

<sup>2</sup> PJ = Pinyon-Juniper; BS = Big sagebrush; BLS = Black sagebrush; PG = perennial grassland; W = Wash; D = Disturbed area.

TABLE 5-2 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
<u>Machaeranthera</u> <u>canescens</u>	Aster	F	BS,W
<u>Senecio multilobatus</u>	Butterweed	F	PJ,BS
<u>Stephanomeria exigua</u>	Wire lettuce	F	BS,W
<u>Townsendia incana</u>	Easter daisy	F	BS
BORAGINACEAE			
<u>Cryptantha</u> sp.	Catseye	F	BS,PJ
BRASSICACEAE			
<u>Arabis</u> sp.	Rockcress	F	BS
<u>Descurainia pinnata</u>	Tansy mustard	F	BS,BLS,PJ, PG
<u>Descurainia sophia</u>	Tansy mustard	F	BS,D
<u>Descurainia</u> sp.	Tansy mustard	F	BS
<u>Physaria chambersii</u>	Twinpod	F	PJ
<u>Sisymbrium altissimum</u>	Tumble mustard	F	BS,D
<u>Streptanthella</u> <u>longirostris</u>	Streptanthella	F	BS,W
<u>Streptanthella</u> <u>cordatus</u>	Twist flower	F	PJ
CACTACEAE			
<u>Echinocereus</u> <u>triglochidiatus</u>	Hedgehog cactus	S	BIS
<u>Opuntia erinacea</u>	Prickly pear	S	PJ,BS,BLS, PG,W
<u>Opuntia whipplei</u>	Whipple cholla	S	BS,PG

TABLE 5-2 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
CAPPARIDACEAE			
<u>Cleome lutea</u>	Yellow beeplant	F	BS,D
<u>Cleome serrulata</u>	Rocky Mountain beeplant	F	D
CHENOPODIACEAE			
<u>Atriplex canescens</u>	Fourwing saltbush	S	W
<u>Ceratoides lanata</u>	Winterfat	S	BS,BLS,PG
<u>Chenopodium</u> sp.	Goosefoot	F	PG
<u>Grayia spinosa</u>	Spiny hopsage	S	BS
CUPRESSACEAE			
<u>Juniperus osteosperma</u>	Utah juniper	T	PJ,W
EPHEDRACEAE			
<u>Ephedra nevadensis</u>	Nevada Mormon tea	S	PJ,BS,BLS, PG
<u>Ephedra viridis</u>	Mormon tea	S	PJ
EUPHORBIACEAE			
<u>Euphorbia glyptosperma</u>	Spurge	F	W
FABACEAE			
<u>Astragalus lentiginosus</u>	Milkvetch	F	PJ,BS,BLS PG
<u>Astragalus</u> sp.	Milkvetch	F	BS,PG
<u>Lathyrus</u> sp.	Pea-vine	F	PJ

TABLE 5-2 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
LAMIACEAE			
<u>Marrubium vulgare</u>	Common horehound	F	D
MALVACEAE			
<u>Sphaeralcea coccinea</u>	Scarlet globemallow	F	BS, PG
NYCTAGINACEAE			
<u>Abronia fragrans</u>	Sand verbena	F	BS
ONAGRACEAE			
<u>Oenothera</u> sp.	Evening primrose	F	BS, PG
PLANTAGINACEAE			
<u>Plantago</u> sp.	Plantain	F	BS, PG
POACEAE			
<u>Agropyron cristatum</u>	Crested wheatgrass	G	BS, D
<u>Agropyron smithii</u>	Western wheatgrass	G	W
<u>Aristida purpurea</u>	Purple threeawn	G	PJ, BS, BLS PG, W
<u>Bouteloua gracilis</u>	Blue grama	G	BS, PG
<u>Bromus tectorum</u>	Cheatgrass	G	PJ, BS, BLS, PG, W, D
<u>Hilaria jamesii</u>	Galleta grass	G	PJ, BS, BLS PG
<u>Hordeum jubatum</u>	Foxtail barley	G	W

TABLE 5-2 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
<u>Oryzopsis hymenoides</u>	Indian ricegrass	G	PJ,BS,BLS PG,W
<u>Poa sandbergii</u>	Sandberg bluegrass	G	BS
<u>Sitanion hystrix</u>	Bottlebrush squirreltail	G	PJ,BS,BLS, PG,W
<u>Sitanion</u> sp.	Squirreltail	G	PJ
<u>Sporobolus</u> <u>cryptandrus</u>	Sand dropseed	G	PJ,BS,PG,
<u>Stipa comata</u>	Needle-and-thread	G	PJ,BS,PG
<u>Vulpia octoflora</u>	Six-weeks fescue	G	PJ,BS,BLS
POLEMONIACEAE			
<u>Gilia</u> sp.	Gilia	F	BS
<u>Ipomopsis congesta</u>	Ballhead gilia	F	BS
<u>Leptodactylon</u> <u>pungens</u>	Prickleygilia	S	PJ,BLS,BS
POLYGONACEAE			
<u>Eriogonum microthecum</u>	Slenderbush erogonum	S	PJ,BS,BLS
<u>Eriogonum ovalifolium</u>	Cushion eriogonum	F	PJ,BS
<u>Eriogonum</u> sp.	Eriogonum	S	PJ,BS,BLS
<u>Polygonum aviculare</u>	Knotweed	F	D
ROSACEAE			
<u>Purshia tridentata</u>	Bitterbrush	S	PJ



TABLE 5-2 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
SANTALACEAE			
<u>Comandra umbellata</u>	Bastard toadflax	F	BS
SCROPHULARIACEAE			
<u>Penstemon</u> sp.	Penstemon	F	PJ
SOLANACEAE			
<u>Lycium pallidum</u>	Pale wolfberry	S	W



The only tree recorded on any releve quadrat in the study area was juniper (Juniperus osteosperma). It was present in all associations except the black sagebrush association, and it was the dominant species in the pinyon-juniper association. The big sagebrush association contained the highest number of species recorded. All associations contained an average of 40 percent or less vegetative cover. The black sagebrush association had the least amount of vegetative cover (17.4 percent) and the lowest number of species (13). Cacti in the survey area included prickly pear (Opuntia polycantha) in all associations except pinyon-juniper, and Whipple cholla (Opuntia whipplei) in big sagebrush and perennial grassland associations.

#### 5.1.2 Overview of Wildlife

Wildlife observations from the Milford Preferred OBTS study area are summarized in Table 5.3, and area-specific data are contained in Appendix F.

Since wildlife are mobile, and the releve quadrats are fairly small, wildlife observations obtained only from the releves would not have provided sufficient data on species composition. Observations were therefore made over larger areas surrounding a group of releve quadrats. Locations of these areas are shown in Figure 5.2.

Twelve species of mammals or mammal sign, 31 species of birds, and 9 species of reptiles were observed during the survey. Black-tailed jackrabbits (Lepus californicus) were the most commonly observed mammal species. An unidentified species of bat was also observed. Mule deer (Odocoileus hemionus) and pronghorn antelope (Antilocapra americana) sign were found

TABLE 5-3

WILDLIFE SIGN AND SIGHTINGS ON THE  
MILFORD PREFERRED OBTS

Species	Habitat Observed					
	BS	BLS	PG	PJ	W	D
MAMMALS						
Vespertilionid bat ( <u>Family Vespertilionidae</u> )	X					
Blacktailed jackrabbit ( <u>Lepus californicus</u> )	X	X	X	X	X	X
Desert cottontail ( <u>Sylvilagus audubonii</u> )	X					X
White-tail antelope ground squirrel ( <u>Ammospermophilus leucurus</u> )	X					
Little pocket mouse ( <u>Perognathus longimembris</u> )						
Long-tailed pocket mouse ( <u>Perognathus formosus</u> )						
Deer mouse ( <u>Peromyscus maniculatus</u> )						
Northern grasshopper mouse ( <u>Onychomys leucogaster</u> )	X					
Woodrat ( <u>Neotoma sp.</u> )						
Coyote ( <u>Canis latrans</u> )						
Bobcat ( <u>Felis rufus</u> )						
Mule deer ( <u>Odocoileus hemionus</u> )			X	X		
Pronghorn antelope ( <u>Antilocapra americana</u> )	X		X			
BIRDS						
Sharp-skinned hawk ( <u>Accipiter striatus</u> )	X					
Red-tailed hawk ( <u>Buteo jamaicensis</u> )	X	X		X		
Swainson's hawk ( <u>Buteo swainsoni</u> )	X					
Golden eagle ( <u>Aquila chrysaetos</u> )	X					
Bald eagle ( <u>Haliaeetus leucocephalus</u> )	X					

BS = Big sagebrush; BLS = Black sagebrush; PG = perennial grassland; PJ = Pinyon-Juniper; W = Wash; D = Disturbed area.

TABLE 5-3 (Cont.)

Species	Habitat Observed					
	BS	BLS	PG	PJ	W	D
BIRDS (Cont.)						
Northern harrier ( <u>Circus cyaneus</u> )	X					
Prairie falcon ( <u>Falco mexicanus</u> )						
American kestrel ( <u>Falco sparverius</u> )	X	X		X		
Mourning dove ( <u>Zenaida macroura</u> )	X			X		
Barn owl ( <u>Lyto alba</u> )						X
Great-horned owl ( <u>Bubo virginianus</u> )						
Burrowing owl ( <u>Athene cunicularia</u> )	X				X	
Poor-will ( <u>Phalaenoptilus nuttallii</u> )						
Common nighthawk ( <u>Chordeiles minor</u> )						
Broad-tailed hummingbird ( <u>Selasphorus platycercus</u> )	X					
Horned lark ( <u>Eremophila alpestris</u> )	X		X			
Say's phoebe ( <u>Sayornis saya</u> )	X					
Scrub jay ( <u>Aphelocoma coerulescens</u> )				X		
Common raven ( <u>Corvus corax</u> )	X					
Pinyon jay ( <u>Gymnorhinus cyanocephalus</u> )	X	X		X		
Plain titmouse ( <u>Parus inornatus</u> )	X	X		X		
Bushtit ( <u>Psaltiriparus minimus</u> )	X	X		X		
Bewick's wren ( <u>Thryomanes bewicki</u> )						
Sage thrasher ( <u>Oreoscaptes montanus</u> )	X				X	
Loggerhead shrike ( <u>Lanius ludovicianus</u> )	X					
Western meadowlark ( <u>Sturnella neglecta</u> )	X		X		X	

TABLE 5-3 (Cont.)

Species	BS	Habitat Observed				
		BLS	PG	PJ	W	D
BIRDS (Cont.)						
Vesper sparrow ( <u>Poecetes gramineus</u> )	X		X			
Lark sparrow ( <u>Chondestes grammacus</u> )					X	
Black-throated sparrow ( <u>Amphispiza bilineata</u> )						
Sage sparrow ( <u>Amphispiza belli</u> )	X		X		X	
Brewer's sparrow ( <u>Spizella breweri</u> )	X		X			
REPTILES						
Desert horned lizard ( <u>Phrynosoma platyrhinos</u> )	X					
Short-horned lizard ( <u>Phrynosoma douglassi</u> )						
Leopard lizard ( <u>Crotaphytus wislizenii</u> )	X					
Plateau whiptail ( <u>Cnemidophorus velox</u> )	X			X		
Side-blotched lizard ( <u>Uta stansburiana</u> )	X					
Sagebrush lizard ( <u>Sceloporus graciosus</u> )	X					
Western fence lizard ( <u>Sceloporus occidentalis</u> )	X			X		
Western whiptail ( <u>Cnemidophorus tigris</u> )						
Gopher snake ( <u>Pituophis melanoleucus</u> )	X					

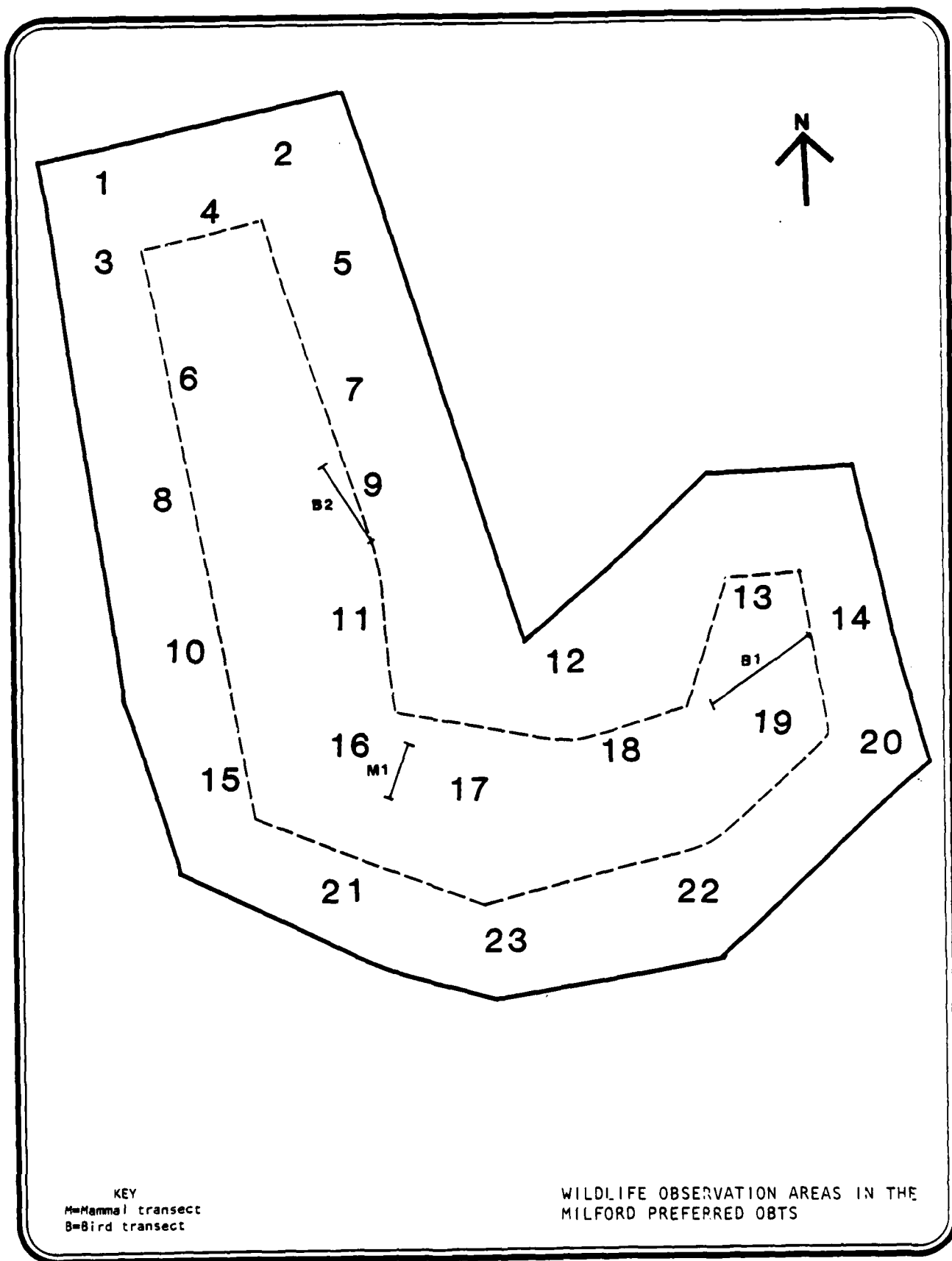


FIGURE 5-2

during the survey. Several raptors were observed during the surveys, including the bald eagle (Haliaeetus leucocephalus), golden eagle (Aquila chrysaetos), prairie falcon (Falco mexicanus), and burrowing owl (Athene cunicularia). The most common birds observed were Brewer's sparrows (Spizella breweri) and sage sparrows (Amphispiza belli).

Several lizard species were observed; the most common were side-blotched lizards (Uta stansburiana). Gopher snakes (Pituophis melanoleucus) were observed on two sites.

Evidence of cattle grazing was present on most sites.

#### 5.1.3 Species of Concern

No threatened or endangered mammals or reptiles were observed in the Milford Preferred OBTS survey area, although mule deer and antelope sign indicated the presence of these protected game species.

Most birds in the area have protected status under special law such as the Bald Eagle Act or Migratory Bird Treaty Act. A large number of species were observed, including several raptors, which are generally considered to be of concern to the state. These included the bald eagle (Haliaeetus leucocephalus) and golden eagle (Aquila chrysaetos), both protected by the Bald Eagle Act. The bald eagle is listed as endangered in the Federal Register (1980b).

No threatened or endangered plants were observed in the study area. Cacti are generally considered species of concern, and several species were observed during the survey, including Opuntia whipplei, but it is not believed to be the variety listed as Currently Under Review in the Federal Register (1980a).



## 5.2 MILFORD ALTERNATE OBTS

The biological survey of the Beryl and Milford OBTS sites and adjacent DTN segments was undertaken from August 17 through September 29, 1981. Approximately 3000 acres of test site and a buffer zone approximately one mile in width outside of the site perimeter were sampled on the Milford Alternate Site. A total of 106 releve quadrats for vegetation, 3 small mammal trapping transects, 3 bird census transects, and wildlife observations were made within the area. Results of the survey are discussed below.

### 5.2.1 Overview of Vegetation

Six major vegetation associations were observed in the alternate Milford site. Of the 106 quadrats sampled there were 6 in pinyon-juniper (Pinus-Juniperus) associations, 62 in big sagebrush (Artemisia tridentata), 4 in sand sagebrush (Artemisia filifolia), 11 in black sagebrush (Artemisia nova), 5 in greasewood-saltbush (Sarcobatus-Atriplex) and 13 in wash areas. Data were also compiled for areas heavily disturbed by human activity. Vegetative data are given by site in Appendix E. Table 5-4 contrasts the associations and Table 5-5 lists the species observed. Figure 5-3 shows quadrat locations.

The big sagebrush association appeared to support the largest number of species (32), but this may have been merely a function of the larger number of releves made within this association. As expected, disturbed areas such as roadsides, stockponds and corrals, supported a lower number of species (15) than other areas.

The pinyon-juniper association had the highest amount of vegetative cover (49.9 percent), and the sand sagebrush association had the lowest (16.1 percent).

TABLE 5-4  
SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED ON THE MILFORD ALTERNATE OBTS\*

Association Number of Quadrats	Pinyon-Juniper 6			Black Sagebrush 11			Big sagebrush 62			Sand Sagebrush 4			Greasewood- Saltbrush 5			Wash Areas 13			Disturbed Areas 5		
	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species
Trees	1	31.8	—	—	—	—	—	—	—	—	—	—	—	—	—	1	0.8	—	—	—	—
Shrubs/succulents	6	11.3	10	24.2	11	21.4	6	15.8	7	28.8	9	20.3	6	7.0	—	—	—	—	—	—	—
Forbs	6	0	5	0	11	0.2	7	0.3	5	0	9	0	4	6.0	—	—	—	—	—	—	—
Grasses	8	6.8	7	1.6	10	3.7	4	0	5	1.6	5	4.3	5	13.6	—	—	—	—	—	—	—
Total	21	49.9	22	25.8	32	25.3	17	16.1	17	31.6	24	25.4	15	26.6	—	—	—	—	—	—	—
Vegetative Cover	—	6.7	—	2.5	—	11.7	—	45.5	—	43.6	—	20.3	—	26.6	—	—	—	—	—	—	—
Bare Ground	—	31.5	—	67.9	—	51.4	—	26.3	—	19.6	—	45.5	—	37.8	—	—	—	—	—	—	—
Rock/Gravel	—	28.3	—	2.6	—	8.1	—	11.8	—	5.0	—	8.5	—	8.8	—	—	—	—	—	—	—
Litter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

\* Based upon 106 releve quadrats in the area.

TABLE 5-5

PLANT SPECIES OBSERVED ON THE MILFORD  
ALTERNATE OBTS

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
AMARANTHACEAE			
<u>Amaranthus</u> <u>graecizans</u>	Pigweed	F	D
ASTERACEAE			
<u>Ambrosia</u> <u>acanthicarpa</u>	Ragweed	F	D, SaS
<u>Artemisia</u> <u>filifolia</u>	Sand sagebrush	S	SaS
<u>Artemisia</u> <u>nova</u>	Black sagebrush	S	BLS, PJ
<u>Artemisia</u> <u>pygmaea</u>	Pygmy sagebrush	S	BS
<u>Artemisia</u> <u>spinescens</u>	Spiny sagebrush	S	GS
<u>Artemisia</u> <u>tridentata</u>	Big sagebrush	S	BS, PJ, GS, W
<u>Brickellia</u> <u>oblongifolia</u>	Brickellbush	S	W
<u>Chaenactis</u> <u>douglasii</u>	Douglas chaenactis	F	PJ, BS
<u>Chrysothamnus</u> <u>greenei</u>	Greene's rabbitbrush	S	BS, BLS, GS, SaS
<u>Chrysothamnus</u> <u>nauseosus</u>	Rubber rabbitbrush	S	W
<u>Chrysothamnus</u> <u>viscidiflorus</u>	Viscid rabbitbrush	S	PJ, BS, BLS W

<sup>1</sup> T = Tree; S = Shrub/Succulent; F = Forb; G = Grass;  
Gl = Grasslike.

<sup>2</sup> PJ = Pinyon-Juniper; BS = Big sagebrush; BLS = Black  
sagebrush; SS = Shadscale-sagebrush; GS = Greasewood-salt-  
bush; SaS = Sand sagebrush, W = Wash; D = Disturbed area.

TABLE 5-5 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
<u>Gutierrezia</u> <u>sarothrae</u>	Snakeweed	S	PJ,BS,BLS, GS,SaS,W
<u>Haplopappus</u> <u>acaulis</u>	Haplopappus	S	PJ,BS
<u>Hymenopappus</u> <u>filifolius</u>	Hymenopappus	F	SaS,
<u>Machaeranthera</u> <u>canescens</u>	Aster	F	PJ,BS,BLS, SaS,W
<u>Senecio</u> <u>multilobatus</u>	Butterweed	F	PJ,BS,
<u>Stephanomeria</u> <u>exigua</u>	Wire lettuce	F	BS,W
<u>Tetradymia</u> <u>spinosa</u>	Spiny horsebrush	S	GS
<u>Townsendia</u> <u>florifer</u>	Easter daisy	F	BS
<u>Townsendia</u> <u>incana</u>	Easter daisy	F	BS
BORAGINACEAE			
<u>Cryptantha</u> sp.	Catseye	F	BS,PJ
BRASSICACEAE			
<u>Arabis</u> sp.	Rockress	F	BS
<u>Descurainia</u> <u>pinnata</u>	Tansy mustard	F	BS,BLS,GS SaS
<u>Descurainia</u> <u>sophia</u>	Tansy mustard	F	BS,GS
<u>Lepidium</u> <u>montanum</u>	Montana pepperweed	S	GS
<u>Lepidium</u> <u>perfoliatum</u>	Clasping pepperweed	F	D
<u>Sisymbrium</u> <u>altissimum</u>	Tumble mustard	F	BS,D
<u>Streptanthella</u> <u>longirostris</u>	Streptanthella	F	BS,SaS,GS
<u>Streptanthella</u> <u>cordatus</u>	Twist flower	F	PJ,BS

TABLE 5-5 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
CACTACEAE			
<u>Coryphantha vivipara</u>	Coryphantha	S	PJ,BS
<u>Echinocereus triglochidiatus</u>	Hedgehog cactus	S	PJ
<u>Opuntia polycantha</u>	Prickly pear	S	PJ,BS,BLS, GS,SaS,W
<u>Opuntia</u> sp.	Opuntia	S	BS
CAPPARIDACEAE			
<u>Cleome lutea</u>	Yellow beeplant	F	W,D
<u>Cleome serrulata</u>	Rocky Mountain beeplant	F	BS,W,D
CHENOPODIACEAE			
<u>Atriplex canescens</u>	Fourwing saltbush	S	GS,W
<u>Atriplex confertifolia</u>	Shadscale	S	GS
<u>Ceratoides lanata</u>	Winterfat	S	BS,BLS,GS
<u>Grayia spinosa</u>	Spiny hopsage	S	GS
<u>Halogeton glomeratus</u>	Halogeton	F	BS,GS,SS,D
<u>Salsola iberica</u>	Russian thistle	F	BS,GS,D
<u>Sarcobatus vermiculatus</u>	Greasewood	S	GS,W
CUPRESSACEAE			
<u>Juniperus osteosperma</u>	Utah juniper	T	PJ,W

TABLE 5-5 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
EPHEDRACEAE			
<u>Ephedra nevadensis</u>	Nevada Mormon tea	S	PJ,BS,BLS
<u>Ephedra viridis</u>	Mormon tea	S	PJ
EUPHORBIACEAE			
<u>Euphorbia glyptosperma</u>	Spurge	F	PJ,W
<u>Euphorbia</u> sp.	Spurge	F	PJ,W
FABACEAE			
<u>Astragalus lentiginosus</u>	Milkvetch	F	PJ,BS,BLS, SaS
<u>Astragalus</u> sp.	Milkvetch	F	BS
LAMIACEAE			
<u>Marrubium vulgare</u>	Common horehound	F	D
LINACEAE			
<u>Linum perenne</u>	Flax	F	BS,W
MALVACEAE			
<u>Sphaeralcea coccinea</u>	Scarlet globemallow	F	BS
<u>Sphaeralcea</u> sp.	Globemallow	F	BS
NYCTAGINACEAE			
<u>Abronia fragrans</u>	Sand verbena	F	W,SaS
<u>Oxybaphus linearis</u>	Oxybaphus	F	BS

TABLE 5-5 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
ONAGRACEAE			
<u>Oenothera</u> <u>deltoides</u>	Evening primrose	S	BS
<u>Oenothera</u> <u>pallida</u>	Evening primrose	F	SaS
<u>Oenothera</u> <u>trichocalyx</u>	Evening primrose	F	BS, SaS
<u>Oenothera</u> sp.	Evening primrose	F	PJ, BS, BLS, SaS
PAPAVERACEAE			
<u>Argemone</u> <u>munita</u>	Prickly poppy	F	D
PINACEAE			
<u>Pinus</u> <u>monophylla</u>	Pinyon pine	T	PJ
PLANTAGINACEAE			
<u>Plantago</u> <u>insularis</u>	Desert plantain	F	BS
<u>Plantago</u> sp.	Plantain	F	PJ, BS
POACEAE			
<u>Agropyron</u> <u>smithii</u>	Western wheatgrass	G	GS, W
<u>Agropyron</u> <u>spicatum</u>	Bluebunch wheatgrass	G	BIS
<u>Agropyron</u> sp.	Wheatgrass	G	BS
<u>Aristida</u> <u>purpurea</u>	Purple threeawn	G	PJ, BS, BLS, W
<u>Bromus</u> <u>tectorum</u>	Cheatgrass	G	PJ, BS, BLS GS, SaS, W, D

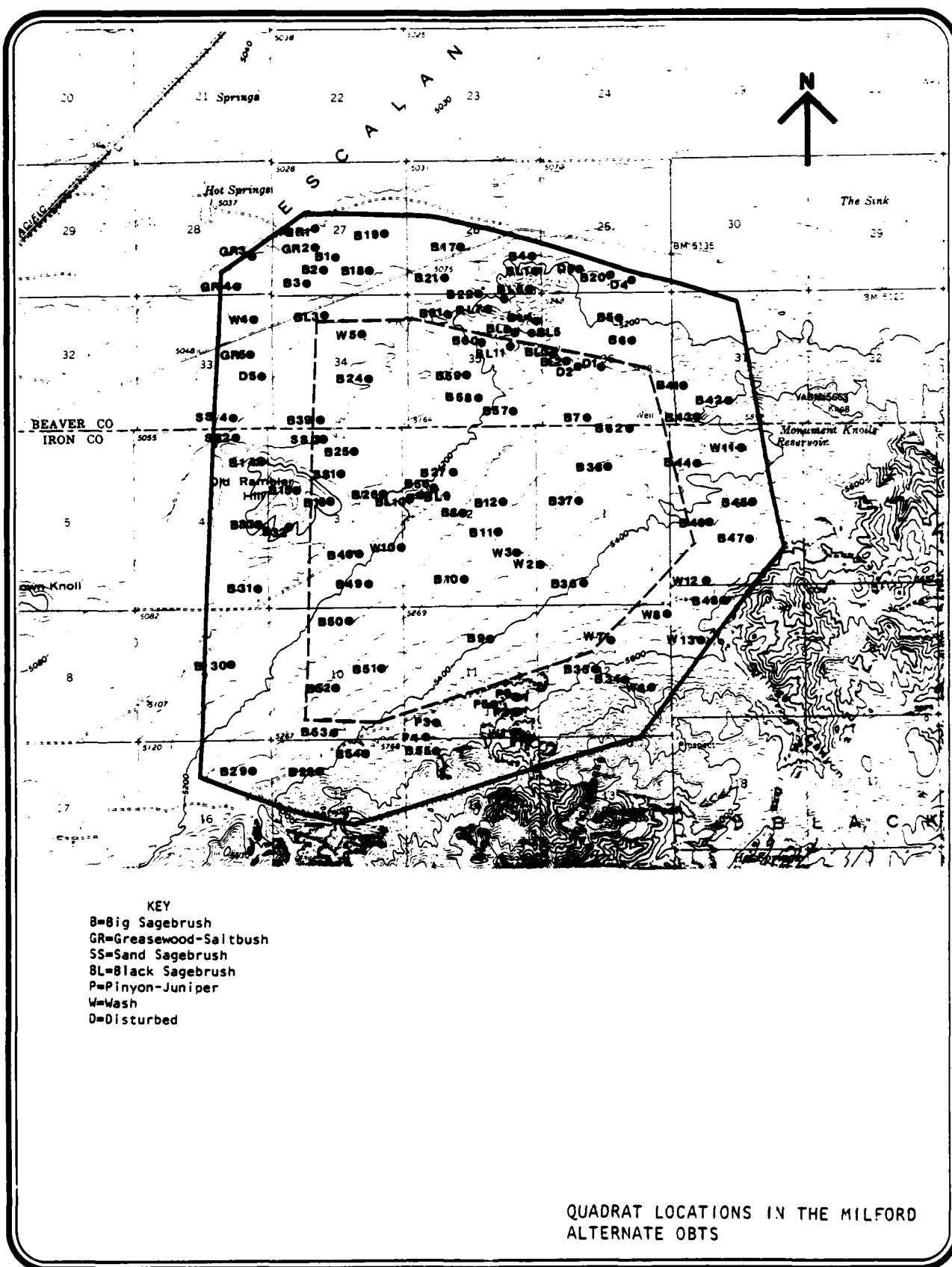
TABLE 5-5 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
<u>Festuca octoflora</u>	Six-weeks fescue	G	PJ,BS,BLS
<u>Hilaria jamesii</u>	Galleta grass	G	PJ,BS,BLS GS
<u>Oryzopsis hymenoides</u>	Indian ricegrass	G	PJ,BS,BLS, GS,Sas
<u>Poa sandbergii</u>	Sandberg bluegrass	G	BS,BIS
<u>Sitanion hystrix</u>	bottlebrush squirreltail	G	PJ,BS,BLS, GS,SaS,W
<u>Sporobolus airoides</u>	Alkali sacaton	G	GS
<u>Sporobolus cryptandrus</u>	Sand dropseed	G	PJ,BS,SaS
<u>Stipa comata</u>	Needle-and-thread	G	PJ,BS,SaS SaS
POLEMONIACEAE			
<u>Gilia</u> sp.	Gilia	F	PJ,BS,BLS
<u>Leptodactylon pungens</u>	Prickleygilia	S	PJ,BLS,BS
POLYGONACEAE			
<u>Eriogonum cernuum</u>	Nodding eriogonum	F	PJ,BS
<u>Eriogonum microthecum</u>	Slenderbush eriogonum	S	PJ,BS,BLS
<u>Eriogonum ovalifolium</u>	Cushion eriogonum	F	PJ,BS,BLS
<u>Polygonum aviculare</u>	Knotweed	F	D
ROSACEAE			
<u>Cowania mexicana</u>	Cliffrose	S	PJ,W



TABLE 5-5 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
SANTALACEAE			
<u>Comandra umbellata</u>	Bastard toadflax	F	PJ,BS
SCROPHULARIACEAE			
<u>Penstemon palmeri</u>	Palmer beardtongue	F	W
<u>Penstemon</u> sp.	Penstemon	F	PJ,BS,
SOLANACEAE			
<u>Nicotiana attenuata</u>	Coyote Tobacco	F	W,D



The pinyon-juniper association contained the only tree species (Juniperus osteosperma) observed in any quadrat, although pinyon pine was observed elsewhere in the area.

#### 5.2.2 Overview of Wildlife

Wildlife observations for the Milford alternate OBTS are summarized by vegetative association in Table 5-6, and area specific data are contained in Appendix F.

Since wildlife are mobile, and the releve quadrats were fairly small, wildlife observations obtained only from the releves would not have provided sufficient data on specific composition. Observations were therefore made over a larger area, surrounding a group of releve quadrats. Location of these areas is shown in Figure 5-4.

Thirteen species of mammals and mammal sign, 25 species of birds, and 7 species of reptiles were observed during the survey. The most common species of mammal was the blacktailed jackrabbit, observed in nearly every area. Coyote scat, feral horse sign, white-tailed antelope ground squirrel, desert cottontail, and inactive badger dens were also noted. Many additional rodent species were noted from the trapping transects (Appendix A). Disturbance by domestic cattle was observed in all areas but one.

Many raptors were noted, including golden eagles, red-tailed hawks and northern harriers, but the most common bird species were sage and Brewer's sparrows and horned larks. All reptiles observed were lizards common to the area.

TABLE 5-6

WILDLIFE SIGN AND SIGHTINGS ON THE  
MILFORD ALTERNATE OBTS

Species	Habitats Where Observed				
	BS	GS	BLS	PJ	W
MAMMALS					
Blacktail jackrabbit ( <u>Lepus californicus</u> )	X	X	X	X	
Desert cottontail ( <u>Sylvilagus audubonii</u> )	X	X			
White-tail antelope ground squirrel ( <u>Ammospermophilus leucurus</u> )	X				
Little pocket mouse ( <u>Perognathus longimembris</u> )	X				
Great Basin pocket mouse ( <u>Perognathus parvus</u> )	X				
Dark kangaroo mouse ( <u>Microdipodops megacephalus</u> )	X				
Ord kangaroo rat ( <u>Dipodomys ordii</u> )	X				
Northern grasshopper mouse ( <u>Onychomys leucogaster</u> )	X				
Deer mouse ( <u>Peromyscus maniculatus</u> )	X				
Desert woodrat ( <u>Neotoma lepida</u> )	X				
Western harvest mouse ( <u>Reithrodontomys megalotis</u> )	X				
Coyote ( <u>Canis latrans</u> )	X	X	X	X	
Feral Horse ( <u>Equus caballus</u> )					
BIRDS					
Red-tailed hawk ( <u>Buteo jamaicensis</u> )	X				X
Golden eagle ( <u>Aquila chrysaetos</u> )	X	X	X	X	
Northern harrier ( <u>Circus cyaneus</u> )	X				

BS = Big Sage; GS = Greasewood-Saltbush, BLS = Black Sage,  
PJ = Pinyon-Juniper; W = Wash.

TABLE 5-6 (Cont.)

Species	Habitats Where Observed				
	BS	GS	BLS	PJ	W
BIRDS (Cont.)					
Prairie falcon ( <u>Falco mexicanus</u> )	X	X			
American kestrel ( <u>Falco sparverius</u> )	X		X	X	
Sage grouse ( <u>Centrocercus urophasianus</u> )	X				
Mourning dove ( <u>Zenaida macroura</u> )	X			X	X
Great horned owl ( <u>Bubo virginianus</u> )				X	
Burrowing owl ( <u>Athene cunicularia</u> )	X	X			
Short-eared owl ( <u>Asio flammeus</u> )				X	
Common flicker ( <u>Colaptes auratus</u> )					
Horned lark ( <u>Eremophila alpestris</u> )	X	X	X		
Common raven ( <u>Corvus corax</u> )	X				
Rock wren ( <u>Salpinctes obsoletus</u> )	X		X		
Mockingbird ( <u>Mimus polyglottos</u> )				X	
Bewick's wren ( <u>Thryomanes bewickii</u> )				X	
Plain titmouse ( <u>Parus inornatus</u> )	X			X	
Common bushtit ( <u>Psaltiriparus minimus</u> )				X	
Loggerhead shrike ( <u>Lanius ludovicianus</u> )	X				
Western meadow lark ( <u>Sturnella neglecta</u> )	X				
Vesper sparrow ( <u>Pooecetes gramineus</u> )	X		X		
Sage sparrow ( <u>Amphispiza belli</u> )	X	X	X	X	

TABLE 5-6 (Cont.)

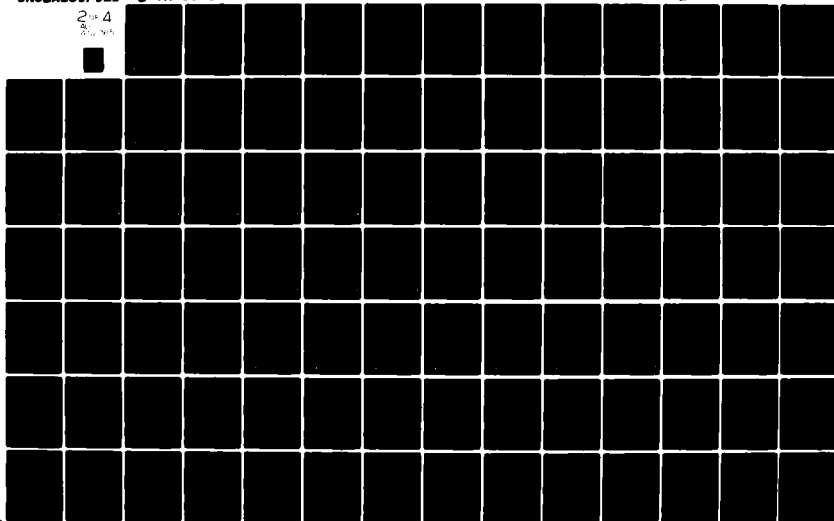
Species	Habitats Where Observed				
	BS	GS	BLS	PJ	W
BIRDS (Cont.)					
Brewer's sparrow ( <u>Spizella breweri</u> )	X		X		X
White-crowned sparrow ( <u>Zonotrichia leucophrys</u> )	X				X
Unidentified sparrow	X				X
REPTILES					
Desert horned lizard ( <u>Phrynosoma platyrhinos</u> )	X				X
Leopard lizard ( <u>Crotaphytus wislizeni</u> )	X				X
Plateau whiptail ( <u>Cnemidophorus velox</u> )					
Great Basin Whiptail ( <u>Cnemidophorus tigris tigris</u> )					
Side-blotched lizard ( <u>Uta stansburiana</u> )	X	X	X		X
Western fence lizard ( <u>Sceloporus occidentalis</u> )					X
Sagebrush lizard ( <u>Sceloporus graciosus</u> )	X				

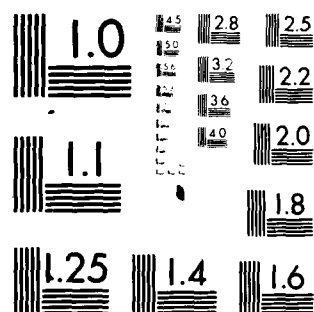
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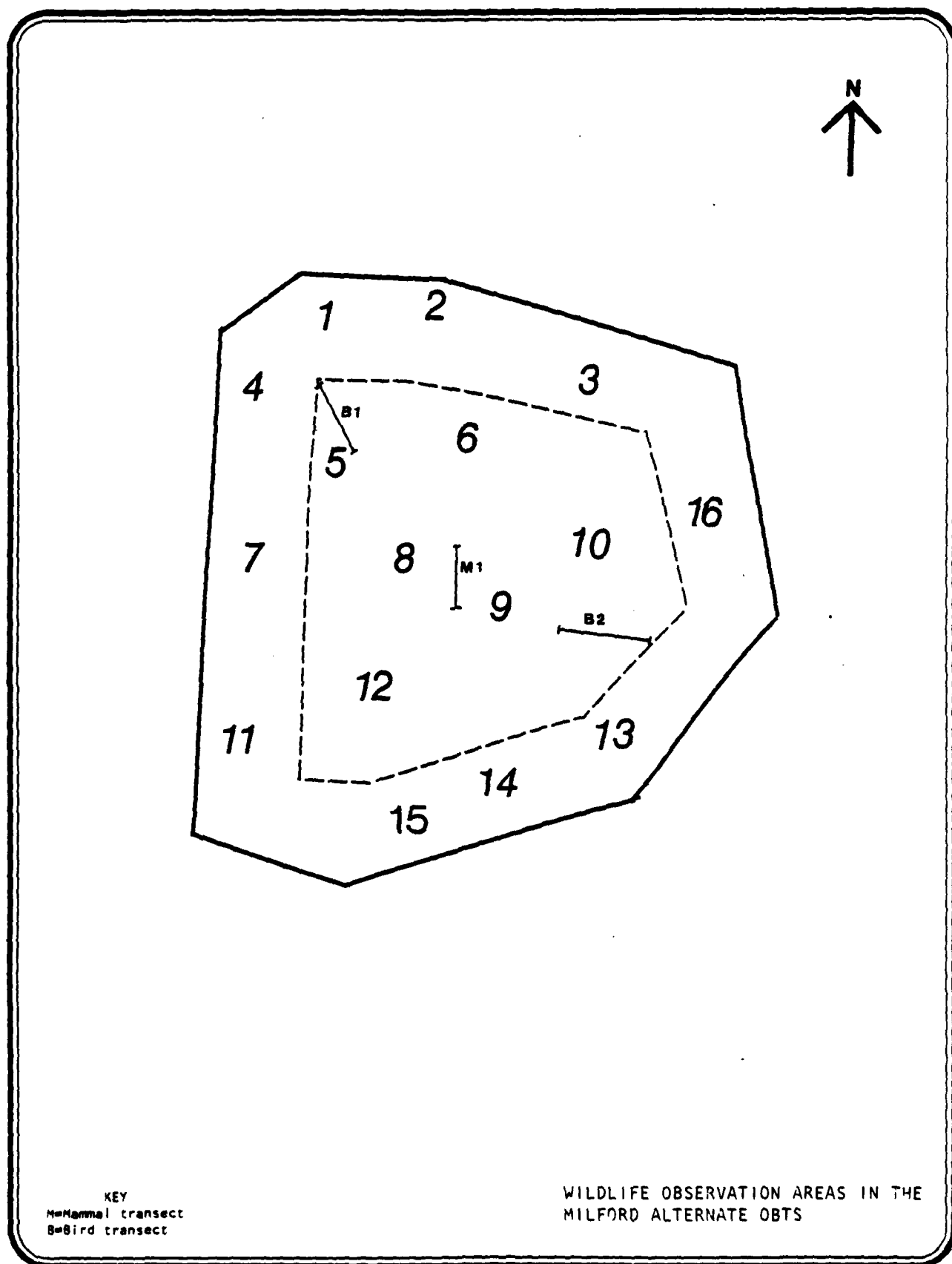
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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS 1963-A





### 5.2.3 Species of Concern

Plant species of concern in the study area included scattered individuals of Coryphantha vivipara var. rosea, a cactus species listed in the Federal Register (1980a) as Currently Under Review. This species was observed within the study area, but was not found within the releve quadrats.

Most birds in the area have protected species status either by special law, such as the Bald Eagle Act, the Migratory Bird Treaty Act, or similar legislation. A number of bird species were observed, including raptor species, which are generally of concern to the state. However, no species of wildlife listed in the Federal Register (1980b) as threatened or endangered were observed within the study area.

### 5.3 BERYL PREFERRED OBTS

The biological survey of the Beryl Preferred OBTS site and adjacent DTN areas was undertaken from August 17 through September 29, 1981. Approximately 6500 acres of test site and a buffer zone approximately one mile in width outside of the site perimeter were sampled. Relève quadrats for vegetation, 6 small mammal trapping transects, 3 bird census transects, and wildlife observations were made within the OBTS. Results of the survey are discussed below.

#### 5.3.1 Overview of Vegetation

Five major vegetation associations were observed on the Beryl preferred OBTS site. Of the 92 vegetation quadrats, there were 30 in a pinyon-juniper (Pinus monophylla-Juniperus osteosperma) association, 11 in a black sagebrush (Artemisia nova) association, 31 in a big sagebrush (Artemisia tridentata) association, 11 in a big sagebrush-crested wheatgrass (Artemisia tridentata-Agropyron cristatum) association, and 9 in wash areas. Vegetative data are given by site in Appendix E. Table 5-7 contrasts the associations, and Table 5-8 lists the plant species observed. Figure 5-5 shows the quadrat locations.

The pinyon-juniper association had the greatest amount of vegetative cover (45.2 percent) and the largest number of plant species (51). The big sagebrush-crested wheatgrass association had the lowest amount of vegetative cover (24.4 percent), and the second lowest number of plant species (30). The wash areas had the lowest total number of plant species (22) with moderate (37.3 percent) cover. The pricklypear cactus (Opuntia polyacantha) was found in all vegetation associations. Pinyon pine (Pinus monophylla) and Utah juniper (Juniperus osteosperma) were found in all associations except the wash association.

TABLE 5-7

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED  
ON THE BEVEL PREFERRED OBTS\*

Association Number of Quadrats	Pinyon-Juniper 30			Black Sagebrush 11			Big sagebrush- crested wheat- grass (11)			Wash Areas 9		
	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)
Trees	2	29.6	2	1.7	2	1.3	2	0.9	0	0.0	0	0.0
Shrubs/succulents	17	10.6	8	24.5	14	17.5	9	10.1	7	31.4	7	31.4
Forbs	23	0.7	15	1.1	20	0.5	12	0.4	9	0.0	9	0.0
Grasses	9	3.4	8	0.4	8	7.9	7	12.8	6	5.2	6	5.2
Total Vegetative Cover	51	45.2	33	35.2	44	28.2	30	24.4	22	37.3	22	37.3
Bare Ground	—	21.9	—	23.9	—	22.1	—	31.3	—	35.4	—	35.4
Rock/Gravel	—	30.2	—	23.9	—	32.8	—	24.9	—	11.2	—	11.2
Litter	—	25.4	—	9.2	—	16.5	—	19.4	—	15.9	—	15.9

\* Based upon 92 releve quadrats for the site.

TABLE 5-8

PLANT SPECIES OBSERVED ON THE BERYL  
PREFERRED OBTS

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
AMARANTHACEAE			
<u>Amaranthus graecizans</u>	Pigweed	F	D
ASTERACEAE			
<u>Ambrosia acanthicarpa</u>	Ragweed	F	D
<u>Artemisia frigida</u>	Fringed sagewort	S	W
<u>Artemisia nova</u>	Black sagebrush	S	BLS, PJ
<u>Artemisia tridentata</u>	Big sagebrush	S	BS, PJ, W
<u>Chaenactis douglasii</u>	Douglas chaenactis	F	PJ, BLS, BS
<u>Chrysothamnus nauseosus</u>	Rubber rabbitbrush	S	W
<u>Chrysothamnus viscidiflorus</u>	Viscid rabbitbrush	S	PJ, BLS, BS W
<u>Erigeron sp.</u>	Fleabane	F	PJ, BLS, BS
<u>Gutierrezia sarothrae</u>	Snakeweed	S	PJ, BLS, BS, W, D
<u>Haplopappus spinulosus</u>	Haplopappus	F	BLS, BS
<u>Leucelene ericoides</u>	Leucelene	F	PJ, BLS, BS
<u>Lygodesmia spinosa</u>	Thorn skeletonweed	S	PJ, BLS, BS
<u>Machaeranthera canescens</u>	Aster	F	PJ, BLS, BS, W

<sup>1</sup> T = Tree; S = Shrub or Succulent; F = Forb; G = Grass.

<sup>2</sup> PJ = Pinyon-Juniper; BS = Big sagebrush; BLS = Black sagebrush; W = Wash; D = Disturbed area.

TABLE 5-8 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
<u>Senecio multilobatus</u>	Butterweed	F	PJ, BLS, BS
<u>Stephanomeria exigua</u>	Wire lettuce	F	BLS, BS, W
<u>Stephanomeria pauciflora</u>	Wire lettuce	S	BS
<u>Stephanomeria</u> sp.	Wire lettuce	F	BS, BLS, W
<u>Tetradymia nuttallii</u>	Nuttall horse- brush	S	BS
<u>Townsendia incana</u>	Easter daisy	F	BS
BORAGINACEAE			
<u>Cryptantha</u> sp.	Catseye	F	BS, BLS, PJ, W
<u>Lappula</u> sp.	Stickseed	F	BS, BLS, PJ
BRASSICACEAE			
<u>Arabis</u> sp.	Rockcress	F	PJ, BS, BLS
<u>Descurainia pinnata</u>	Tansy mustard	F	BS, BLS, W
<u>Descurainia</u> sp.	Tansy mustard	F	BS, BLS
<u>Physaria chambersii</u>	Twinpod	F	PJ, BLS, W
<u>Sisymbrium altissimum</u>	Tumble mustard	F	D
<u>Streptanthella longirostris</u>	Streptanthella	F	BS, BLS
<u>Streptanthella cordatus</u>	Twist flower	F	PJ
CACTACEAE			
<u>Coryphantha vivipara</u> var. <u>rosea</u>	Coryphantha	S	PJ, BLS

TABLE 5-8 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
<u>Opuntia polycantha</u>	Prickly pear	S	PJ,BS,BLS, W,D
<u>Opuntia</u> sp.	Opuntia	S	BS,W
CHENOPODIACEAE			
<u>Atriplex canescens</u>	Fourwing saltbush	S	BS
<u>Ceratoides lanata</u>	Winterfat	S	BS,BLS
<u>Salsola iberica</u>	Russian thistle	F	D
CUPRESSACEAE			
<u>Juniperus osteosperma</u>	Utah juniper	T	PJ,W
FABACEAE			
<u>Astragalus</u> <u>lentiginosus</u>	Milkvetch	F	BS,BLS
<u>Astragalus</u> spp.	Milkvetch	F	PJ,BS,BLS
<u>Lupinus hillii</u>	Lupine	F	BS,W
<u>Lupinus</u> sp.	Lupine	F	PJ,BS,BLS, W
LAMIACEAE			
<u>Marrubium vulgare</u>	Common horehound	F	D
MALVACEAE			
<u>Sphaeralcea coccinea</u>	Scarlet globemallow		BS,BLS
<u>Sphaeralcea</u> sp.	Globemallow		PJ,BS,BLS, W

TABLE 5-8 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
ONAGRACEAE			
<u>Oenothera</u> sp.	Evening primrose	F	PJ,BS
OROBANCHACEAE			
<u>Orobanche</u> sp.	Broomrape	F	BS,W
PINACEAE			
<u>Pinus monophylla</u>	Pinyon pine	T	PJ,W
POACEAE			
<u>Agropyron cristatum</u>	Crested wheatgrass	G	BS,D
<u>Agropyron smithii</u>	Western wheatgrass	G	BS,W
<u>Aristida purpurea</u>	Purple threeawn	G	PJ,BS,BLS, D
<u>Bouteloua gracilis</u>	Blue grama	G	BS,BLS
<u>Bromus tectorum</u>	Cheatgrass	G	D
<u>Elymus</u> sp.	Ryegrass	G	W
<u>Hordeum jubatum</u>	Foxtail barley	G	PJ,D
<u>Koeleria cristata</u>	Prairie junegrass	G	BS
<u>Oryzopsis hymenoides</u>	Indian ricegrass	G	PJ,BS,BLS
<u>Sitanion hystrix</u>	Bottlebrush squirreltail	G	PJ,BS,BLS, W
<u>Sporobolus</u> sp.	Dropseed	G	PJ,BS,BLS
<u>Stipa comata</u>	Needle-and-thread	G	BS,BLS
<u>Stipa lettermani</u>	Letterman needlegrass	G	PJ,BS



TABLE 5-8 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
POLEMONIACEAE			
<u>Gilia</u> sp.	Gilia	F	BS
<u>Ipomopsis congesta</u>	Ballhead gilia	F	PJ,BS,BLS
<u>Leptodactylon</u> <u>pungens</u>	Pricklygilia	S	PJ,BS,BLS
<u>Leptodactylon</u> sp.	pricklygilia	S	BS
<u>Phlox</u> sp.	Phlox	F	BS,BLS
POLYGONACEAE			
<u>Eriogonum microthecum</u>	Slenderbush erigonum	S	PJ,BLS,BS, W
<u>Eriogonum umbellatum</u>	Sulfur erigonum	F	PJ,BLS
<u>Eriogonum</u> sp.	Eriogonum	F	PJ,BLS,BS
PORTULACACEAE			
<u>Portulaca oleracea</u>	Purslane	F	W
POTAMOGETONACEAE			
<u>Potamogeton</u> sp.	Water weed	F	D
ROSACEAE			
<u>Cowania mexicana</u>	Cliffrose	S	PJ,W
<u>Purshia tridentata</u>	Bitterbrush	S	PJ
SANTALACEAE			
<u>Comandra umbellata</u>	Bastard toadflax	F	BS

TABLE 5-8 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
SCROPHULARIACEAE			
<u>Cordylanthus</u> <u>parviflorus</u>	Bird's beak	F	PJ
<u>Cordylanthus racemosus</u>	Bird's beak	F	BS
<u>Penstemon</u> sp.	Penstemon	F	PJ, BS, BLS, W
Unknown Scrophulariaceae		F	PJ
TYPHACEAE			
<u>Typha latifolia</u>	Cattail	F	D

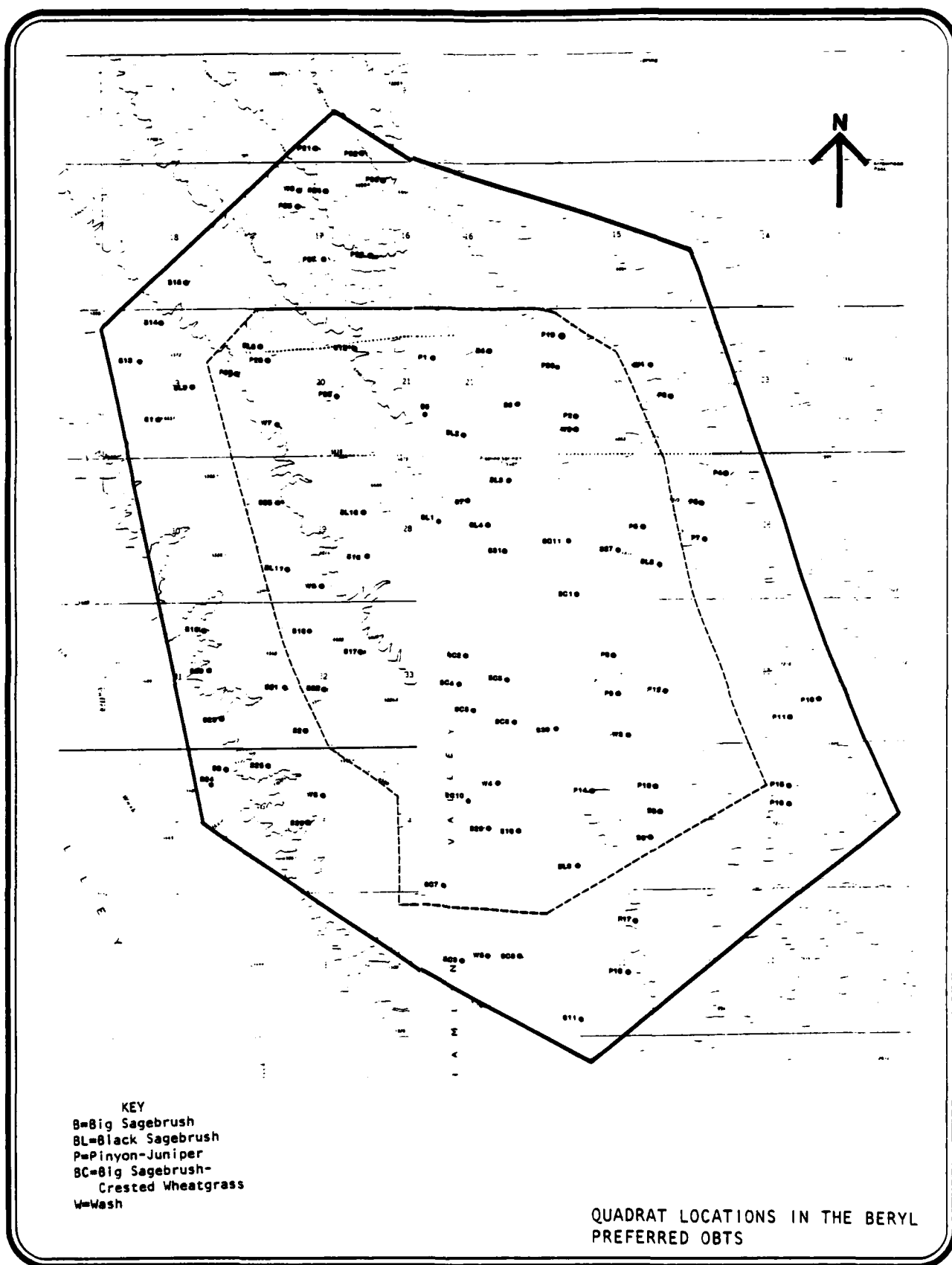


FIGURE 5-5

### 5.3.2 Overview of Wildlife

Wildlife observations from the Beryl preferred OBTS study area are listed in Table 5-9, and area-specific data are contained in Appendix F. Since wildlife are mobile, and releve quadrats are fairly small, observations obtained only from the releves would not have provided sufficient data on species composition. Observations were therefore made over larger areas, which contained a group of releve quadrats. Locations of these areas are shown in Figure 5-6.

Twelve species of mammals or mammal sign, 36 species of birds, and 5 species of reptiles were observed during the surveys. The commonest mammal observed was the black-tailed jackrabbit (Lepus californicus). Pronghorn antelope (Antilocapra americana) and mule deer (Odocoileus hemionus) sign were observed within the study area. Two bobcats (Lynx rufus) and fox (Vulpes sp.) tracks were observed during the August survey, and bobcat and coyote (Canis latrans) tracks were observed during the September survey.

The bird species observed were diverse. Raptors included goshawks (Accipiter gentilis), Cooper's hawks (Accipiter cooperii), sharp-shinned hawks (Accipiter striatus), and golden eagles (Aquila chrysaetos).

Several lizard species were observed; the side-blotched lizard (Uta stansburiana) was the most frequently noted.

TABLE 5-9

WILDLIFE SIGN AND SIGHTINGS ON THE  
BERYL PREFERRED OBTS

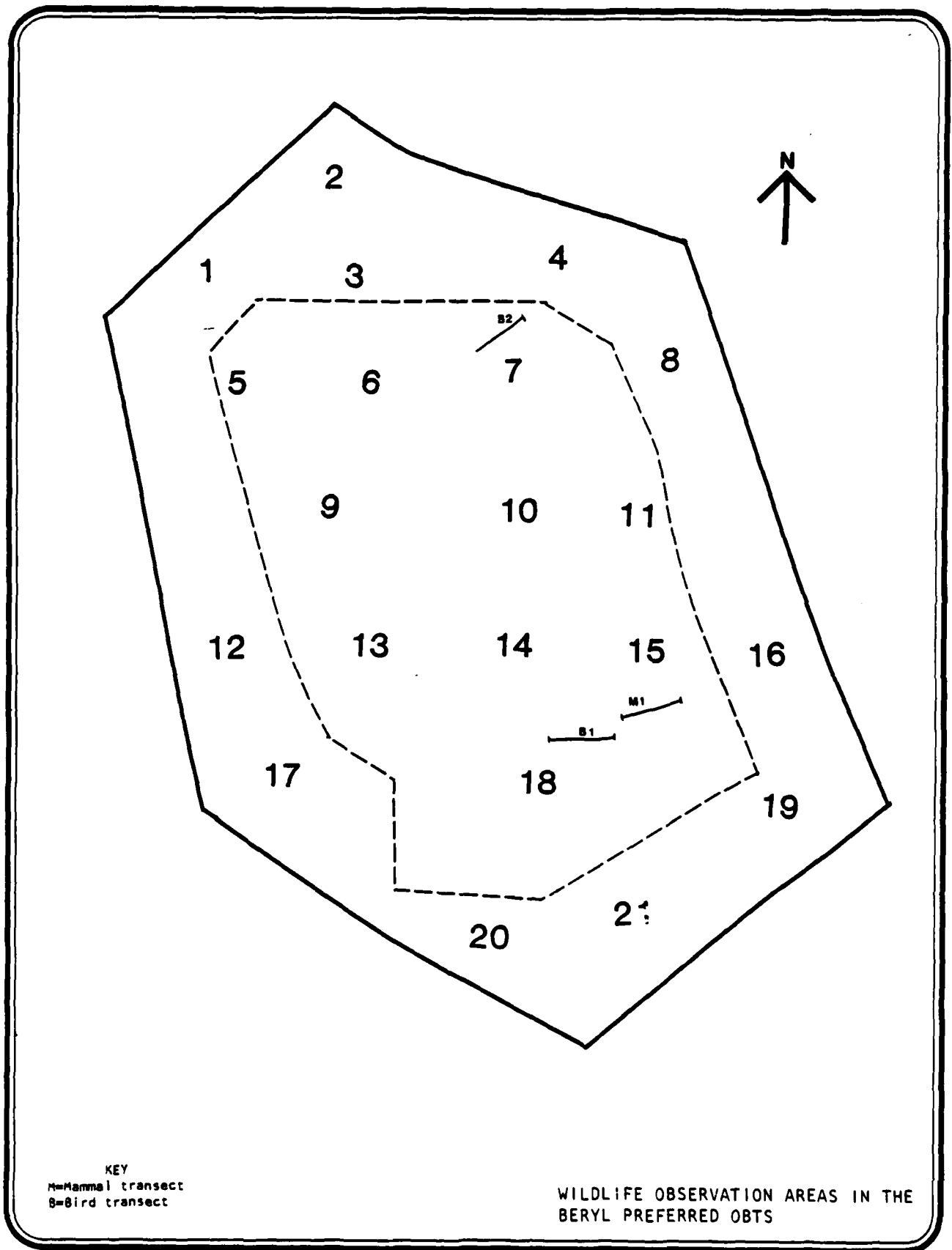
Species	Habitat Observed			
	BS	BLS	BC	PJ
<u>Mammals</u>				
Black-tailed jackrabbit ( <u>Lepus californicus</u> )	X	X	X	X
Desert cottontail ( <u>Sylvilagus audubonii</u> )		X		
Rock squirrel ( <u>Spermophilus variegatus</u> )				X
Least chipmunk ( <u>Eutamias minimus</u> )	X		X	
Cliff chipmunk ( <u>Eutamias dorsalis</u> )			X	X
White-tailed antelope squirrel ( <u>Ammospermophilus leucurus</u> )			X	
Great Basin pocket mouse ( <u>Perognathus parvus</u> ) <sup>a</sup>				
Pinyon mouse ( <u>Peromyscus truei</u> )				
Deer mouse ( <u>Peromyscus maniculatus</u> ) <sup>a</sup>				
Sagebrush vole ( <u>Lagurus curtatus</u> ) <sup>a</sup>				
Coyote ( <u>Canis latrans</u> )	X		X	X
Bobcat ( <u>Lynx rufus</u> )			X	X
Mule deer ( <u>Odocoileus hemionus</u> )			X	X
Pronghorn antelope ( <u>Antilocapra americana</u> )	X	X	X	X
Feral horse ( <u>Equus caballus</u> )			X?	X
Badger ( <u>Taxidea taxus</u> )				X
Fox ( <u>Vulpes</u> sp.)				X
Gopher (Unidentified burrow)	X			
<u>Birds</u>				
Goshawk ( <u>Accipiter gentilis</u> )				X
Sharp-shinned hawk ( <u>Accipiter striatus</u> )				X
Cooper's hawk ( <u>Accipiter cooperii</u> )				X
Golden eagle ( <u>Aquila chrysaetos</u> )	X		X	X
American kestrel ( <u>Falco sparverius</u> )	X		X	
Northern harrier ( <u>Circus cyaneus</u> )	X			
Sage grouse ( <u>Centrocercus urophasianus</u> )			X	
Mourning dove ( <u>Zenaida macroura</u> )				

PJ - Pinyon-Juniper; BS = Big sagebrush; BLS = Black sagebrush;  
BC = Big sage-crested wheatgrass; W = Wash.

<sup>a</sup> Trapped.

TABLE 5-9 (Cont.)

Species	Habitat Observed			
	BS	BLS	BC	PJ
Great horned owl ( <u>Bubo virginianus</u> )				
Owl species (Unidentified)	X			
Poor-will ( <u>Phalaenoptilus nuttallii</u> )	X			
Common nighthawk ( <u>Chordeiles minor</u> )				X
Common flicker ( <u>Colaptes auratus</u> )				X
Hairy woodpecker ( <u>Dendrocopos villosus</u> )				X
Ash-throated flycatcher ( <u>Myiarchus cinerascens</u> )	X			
Gray flycatcher ( <u>Empidonax wrightii</u> )				X
Horned lark ( <u>Eremophila alpestris</u> )	X		X	
Scrub jay ( <u>Aphelocoma coerulescens</u> )			X	X
Common raven ( <u>Corvus corax</u> )	X	X	X	
Pinyon jay ( <u>Gymnorhinus cyanocephalus</u> )	X	X	X	X
Clark's nutcracker ( <u>Nucifraga columbiana</u> )				X
Mountain chickadee ( <u>Parus gambeli</u> )	X		X	X
Plain titmouse ( <u>Parus inornatus</u> )	X			X
Bushtit ( <u>Psaltiriparus minimus</u> )	X	X	X	X
White-breasted nuthatch ( <u>Sitta carolinensis</u> )				X
Red-breasted nuthatch ( <u>Sitta canadensis</u> )				X
Bewick's wren ( <u>Thryomanes bewickii</u> )				X
American robin ( <u>Turdus migratorius</u> )				
Mountain bluebird ( <u>Sialia currucoides</u> )	X	X	X	
Blue-gray gnatcatcher ( <u>Polioptila caerulea</u> )				
Black-throated gray warbler ( <u>Dendroica nigrescens</u> )				
Audubon's warbler ( <u>Dendroica auduboni</u> )	X	X		
Western meadowlark ( <u>Sturnella neglecta</u> )	X		X	
Vesper sparrow ( <u>Poocetes gramineus</u> )	X		X	
Sage sparrow ( <u>Amphispiza belli</u> )		X		
Chipping sparrow ( <u>Spizella passerina</u> )				X
Brewer's sparrow ( <u>Spizella breweri</u> )	X		X	
<u>Reptiles</u>				
Desert horned lizard ( <u>Phrynosoma platyrhinos</u> )		X	X	
Short-horned lizard ( <u>Phrynosoma douglassi</u> )	X			
Sagebrush lizard ( <u>Sceloporus graciosus</u> )	X	X	X	X
Side-blotched lizard ( <u>Uta stansburiana</u> )	X		X	X
Western fence lizard ( <u>Sceloporus occidentalis</u> )	X			X
Great Basin whiptail ( <u>Cnemidophorus tigris tigris</u> )			X	



### 5.3.3 Species of Concern

No threatened or endangered mammals or reptiles were observed on the Beryl preferred OBTS study area, although mule deer and antelope, protected as game species, were noted in the area.

Most birds in the area have protected status by special law such as the Migratory Bird Treaty Act or the Bald Eagle Act. A large number of bird species were observed, including 8 species of raptors, a group of general concern to the state.

The cactus Coryphantha vivipara var. rosea, Currently Under Review in the Federal Register (1980a), was observed in the survey area. No other plants observed in the study area are believed to be rare varieties.



#### 5.4 UTAH DTN: SEGMENT I-D

The biological survey of the DTN was undertaken concurrently with the Utah OBTS survey, during the period of August 17 through September 29, 1981. Segment I-D of the proposed road runs from the vicinity of Lamoseaux Well to north of Mackleprang Reservoir. Most of it was along existing unimproved roads and was designated as non-restricted, except for topographic restrictions in the vicinity of Red Hill.

Segment I-D covered approximately 22 miles. A total of 113 releve quadrats were made along its length. As trapping transects and bird census transects were made in the adjacent OBTS area, these were not repeated along the DTN corridor. Results of the DTN survey in this segment are discussed below.

##### 5.4.1 Overview of Vegetation

Six major vegetation associations were observed on this DTN Segment. Of the 113 quadrats, there were 46 in a pinyon-juniper (Pinus sp. - Juniperus osteosperma) association, 6 in a black sagebrush (Artemisia nova) association, 30 in a big sagebrush (Artemisia tridentata) association, 15 in a rabbitbrush (Chrysothamnus sp.) association, 2 in a winterfat (Ceratoides lanata) association, and 14 in a wash association. Vegetation data are given by site in Appendix E. Table 5-10 contrasts the associations, and Table 5-11 lists the plant species observed. Figure 5-7 shows the quadrat locations.

The only trees found in the area were Utah juniper (Juniperus osteosperma) and two species of pinyon pine (Pinus edulis and

TABLE 5-10

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED  
ALONG UTAH DTM CORRIDOR SEGMENT I-D\*

Association Number of Quadrats	Black						Wash					
	Pinyon-Juniper 46		Sagebrush 6		Big sagebrush 30		Rabbitbrush 15		Winterfat 2		Areas 14	
	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)
Trees	3	31.6	1	3.2	3	0.7	0	0.0	0	0.0	2	0.7
Shrubs/succulents	15	6.5	8	19.5	15	25.0	5	22.8	1	44.0	8	26.3
Forbs	34	0.8	6	0.5	18	0.6	7	0.6	3	0.5	20	1.3
Grasses	12	1.3	5	1.7	10	3.2	8	14.2	1	0.5	8	1.3
Total												
Vegetative Cover	64	40.4	20	24.8	46	29.5	20	37.6	5	45.0	38	30.1
Bare Ground	—	22.2	—	16.7	—	30.6	—	34.4	—	49.5	—	35.0
Rock/Gravel	—	33.0	—	53.5	—	32.5	—	24.0	—	1.0	—	26.0
Litter	—	22.0	—	4.8	—	7.0	—	3.9	—	3.5	—	8.5

\* Based upon 113 releve quadrats in the area.

TABLE 5-11

PLANT SPECIES OBSERVED ALONG UTAH  
DTN CORRIDOR SEGMENT I-D

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
<b>AMARANTHACEAE</b>			
<u>Amaranthus albus</u>	Pigweed	F	W
<u>Amaranthus</u> sp.	Pigweed	F	W
<b>ASTERACEAE</b>			
<u>Artemisia nova</u>	Black sagebrush	S	BLS,PJ,BS
<u>Artemisia tridentata</u>	Big sagebrush	S	BS,BLS,R, WF
<u>Artemisia</u> sp.	Sagebrush	S	PJ
<u>Brickellia oblongifolia</u>	Brickellbush	S	W
<u>Chaenactis douglasii</u>	Douglas chaenactis	F	PJ,BS
<u>Chrysothamnus Greenei</u>	Greene's rabbitbrush	S	BS,BLS,R,W
<u>Chrysothamnus nauseosus</u>	Rubber rabbitbrush	S	W,BS
<u>Chrysothamnus viscidiflorus</u>	Viscid rabbitbrush	S	PJ,BS,BLS, R,W
<u>Chrysothamnus</u> sp.	Rabbitbrush	S	PJ,BS
<u>Erigeron</u> sp.	Fleabane	F	PJ,BS,BLS
<u>Gutierrezia sarothrae</u>	Snakeweed	S	PJ,BS,BLS, R,W

<sup>1</sup> T = Tree; S = Shrub or Succulent; F = Forb; G = Grass.

<sup>2</sup> PJ = Pinyon-Juniper; BS = Big sagebrush; BLS = Black sagebrush; R = Rabbitbrush; WF = Winterfat; W = Wash.

TABLE 5-11 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
<u>Haplopappus acaulis</u>	Haplopappus	S	PJ
<u>Leucelene ericoides</u>	Leucelene	F	BS
<u>Machaeranthera canescens</u>	Aster	F	PJ,BS,R,W
<u>Machaeranthera grindelioides</u>	Aster	S	PJ
<u>Machaeranthera</u> sp.	Aster	F	R
<u>Petradoria pumila</u>	Petradoria	S	PJ,BLS
<u>Senecio multilobatus</u>	Butterweed	F	PJ,BS
<u>Townsendia incana</u>	Easter daisy	F	BS
BORAGINACEAE			
<u>Cryptantha</u> sp.	Catseye	F	BS,BLS,PJ,W
<u>Lappula</u> sp.	Stickseed	F	WF
BRASSICACEAE			
<u>Arabis</u> sp.	Rockcress	F	BS,PJ
<u>Descurainia pinnata</u>	Tansy mustard	F	BS,R,WF,W
<u>Descurainia</u> sp.	Tansy mustard	F	BS,R,WF
<u>Lepidium montanum</u>	Montana pepperweed	F	PJ
<u>Physaria chambersii</u>	Twinpod	F	PJ,W
<u>Physaria</u> sp.	Tumble mustard	F	PJ
<u>Streptanthella longirostris</u>	Streptanthella	F	BS,BLS
<u>Streptanthus cordatus</u>	Twist flower	F	PJ

TABLE 5-11 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
CACTACEAE			
<u>Coryphantha vivipara</u>	Coryphantha	S	PJ
<u>Opuntia polycantha</u>	Blackly pear	S	PJ,BS
CARYOPHYLLACEAE			
<u>Paronychia</u> sp.	Mailwort	F	BS
CHENOPODIACEAE			
<u>Atriplex canescens</u>	Fourwing saltbush	S	BS,W
<u>Ceratoides lanata</u>	Winterfat	S	BS,R,WF,W
<u>Grayia spinosa</u>	Spiny hopsage	S	BLS
<u>Salsola iberica</u>	Russian thistle	F	W
CUPRESSACEAE			
<u>Juniperus osteosperma</u>	Utah juniper	T	PJ,BLS,BS,W
EPHEDRACEAE			
<u>Ephedra nevadensis</u>	Nevada Mormon tea	S	PJ,BS
<u>Ephedra viridis</u>	Mormon tea	S	PJ,BLS,BS
EUPHORBIACEAE			
<u>Euphorbia</u> sp.	Spurge	F	PJ,BS,W
FABACEAE			
<u>Astragalus calycosus</u>	Milkvetch	F	PJ,BLS,BS

TABLE 5-11 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
<u>Astragalus</u> <u>kentrophyta</u>	Milkvetch	F	W, PJ
<u>Astragalus</u> <u>lentiginosus</u>	Milkvetch	F	PJ,BS,BLS,
<u>Astragalus</u> sp.	Milkvetch	F	PJ,R
<u>Lupinus</u> sp.	Lupine	F	PJ,BS,W
GENTIANACEAE			
<u>Frasera</u> <u>albomarginata</u>	Frasera	F	PJ,W
MALVACEAE			
<u>Sphaeralcea</u> <u>ambigua</u>	Desert globe- mallow	F	W
<u>Sphaeralcea</u> <u>coccinea</u>	Scarlet globemallow	F	R
<u>Sphaeralcea</u> <u>grossulariifolia</u>	Sphaeralcea	F	BS,PJ,R,W
<u>Sphaeralcea</u> sp.	Sphaeralcea	F	W,PJ,BS
ONAGRACEAE			
<u>Oenothera</u> sp.	Evening primrose	F	PJ,W
PAPAVERACEAE			
<u>Argemone</u> <u>munita</u>	Prickly poppy	F	W
PINACEAE			
<u>Pinus</u> <u>edulis</u>	Pinyon pine	T	PJ,BS,WF

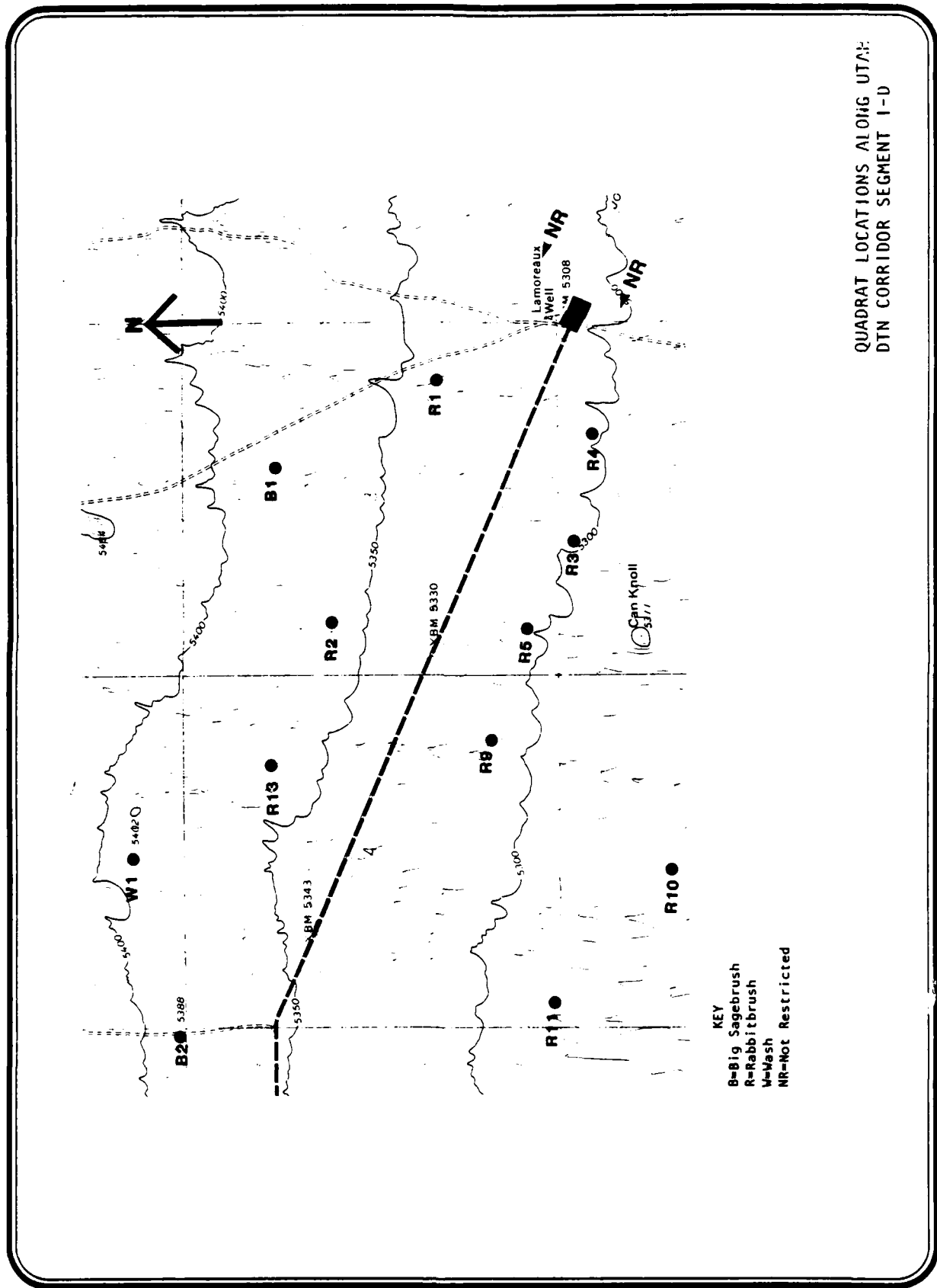
TABLE 5-11 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
<u>Pinus monophylla</u>	Pinyon pine	T	PJ,BS
POACEAE			
<u>Agropyron cristatum</u>	Crested wheatgrass	G	BS,R,W
<u>Agropyron smithii</u>	Western wheatgrass	G	BS,PJ,W
<u>Aristida purpurea</u>	Purple threeawn	G	W
<u>Bouteloua gracilis</u>	Blue grama	G	PJ,BS
<u>Bromus tectorum</u>	Cheatgrass	G	PJ,BS,BLS, R,WF
<u>Hilaria jamesii</u>	Galleta grass	G	PJ,BS,R,W
<u>Munroa squarrosa</u>	False buffalo- grass	G	BS,W,PJ
<u>Oryzopsis hymenoides</u>	Indian ricegrass	G	PJ,BS,BLS, R,W
<u>Poa sandbergii</u>	Sandberg bluegrass	G	BLS,PJ
<u>Poa</u> sp.		G	W
<u>Sitanion hystrix</u>	Bottlebrush squirreltail	G	PJ,BS,BLS,R
<u>Sitanion</u> sp.	Squirreltail	G	PJ,W,BS,R
<u>Sporobolus contractus</u>	Dropseed	G	BS
<u>Sporobolus</u> <u>cryptandrus</u>	Sand dropseed	G	PJ,R
<u>Stipa comata</u>	Needle-and-thread	G	BS,BLS,R
POLEMONIACEAE			
<u>Gilia</u> sp.	Gilia	F	PJ
<u>Ipomopsis congesta</u>	Ballhead gilia	F	PJ,W

TABLE 5-11 (Cont.)

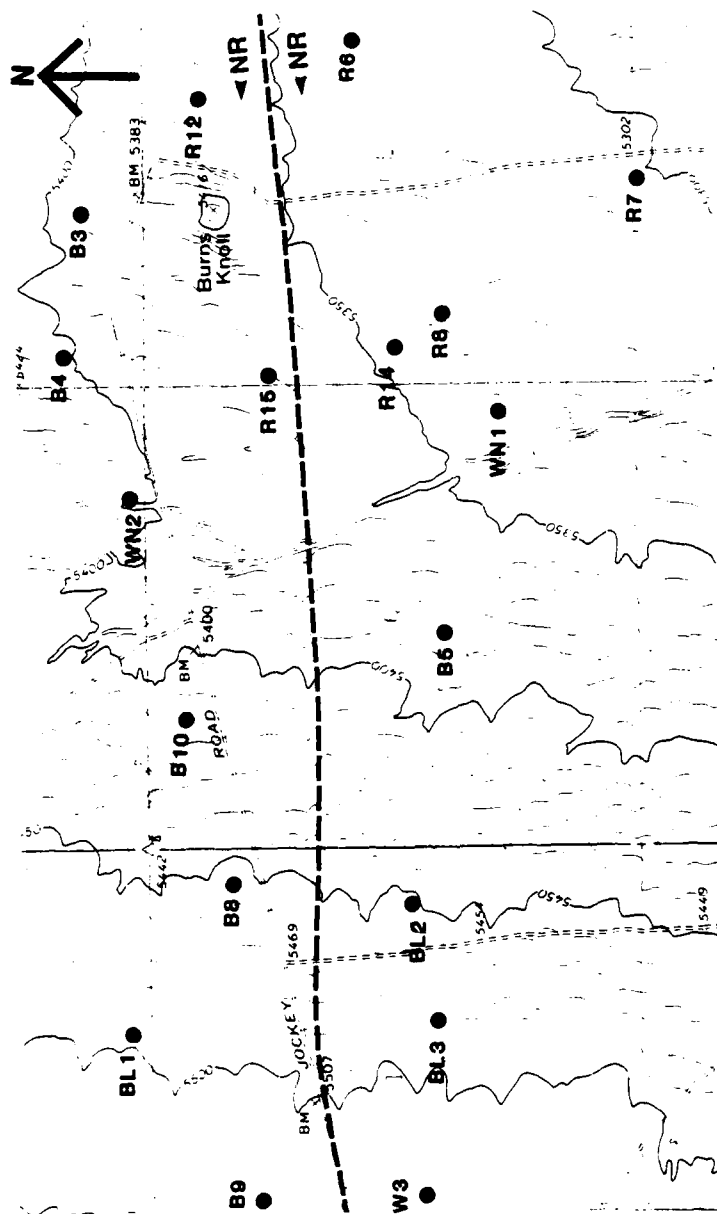
Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
<u>Leptodactylon</u> <u>pungens</u>	Pricklygilia	S	PJ,BS,BLS
<u>Phlox</u> sp.	Phlox	F	BS,PJ,BLS
POLYGONACEAE			
<u>Eriogonum</u> <u>caespitosum</u>	Matted eriogonum	F	PJ
<u>Eriogonum cernuum</u>	Nodding eriogonum	F	PJ
<u>Eriogonum</u> <u>microthecum</u>	Slenderbush eriogonum	S	PJ,BS,
<u>Eriogonum</u> sp.	Eriogonum	F	W
ROSACEAE			
<u>Cowania mexicana</u>	Cliffrose	S	PJ,W
<u>Purshia tridentata</u>	Bitterbrush	S	PJ
SCROPHULARIACEAE			
<u>Cordylanthus</u> <u>parviflorus</u>	Bird's beak	F	PJ
<u>Penstemon concinnus</u>	Penstemon	F	PJ
<u>Penstemon palmeri</u>	Palmer beardtongue	F	W
<u>Penstemon</u> sp.	Penstemon	F	PJ,BS,W





QUADRAT LOCATIONS ALONG UTAH  
DTN CORRIDOR SEGMENT I-D

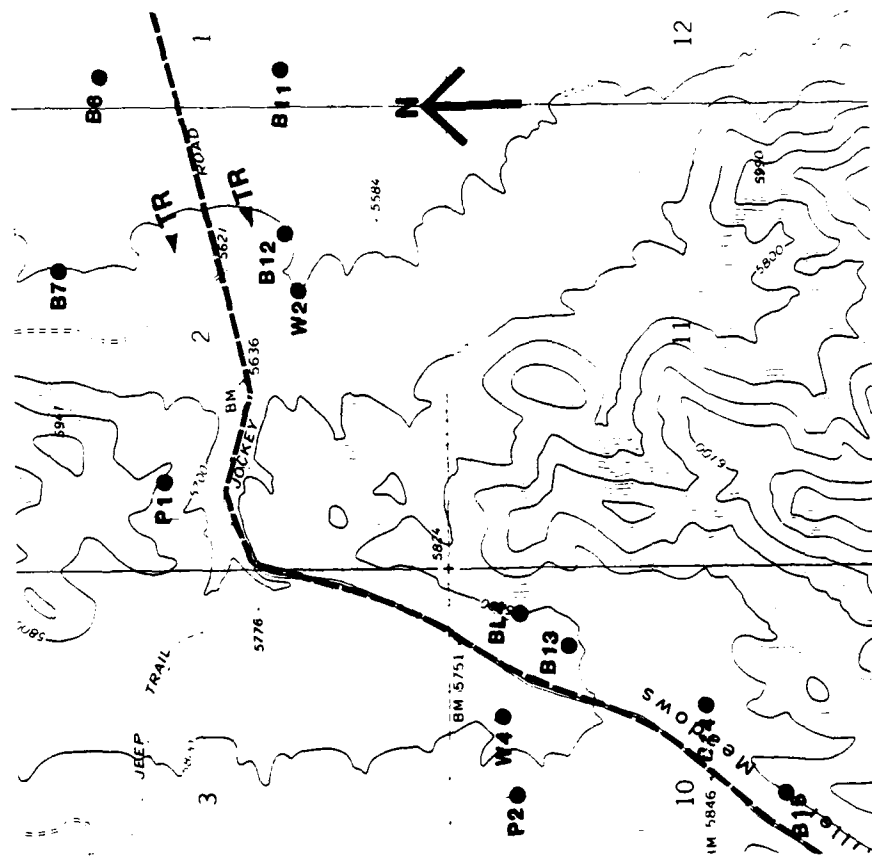
FIGURE 5-7a



KEY  
 B-81g Sagebrush  
 BL-Black Sagebrush  
 R-Rabbitbrush  
 WN-Winterfat  
 W-Wash  
 NR-Not Restricted

QUADRAT LOCATIONS ALONG UTAH  
 DTN CORRIDOR SEGMENT 1-D

FIGURE 5-7b



KEY  
 B=Big Sagebrush  
 BL=Black Sagebrush  
 P=Pinyon-Juniper  
 W=Wash  
 TR=Topographically Restored

QUADRAT LOCATIONS ALONG UTAH  
 DTN CORRIDOR SEGMENT I-D

FIGURE 5-7c

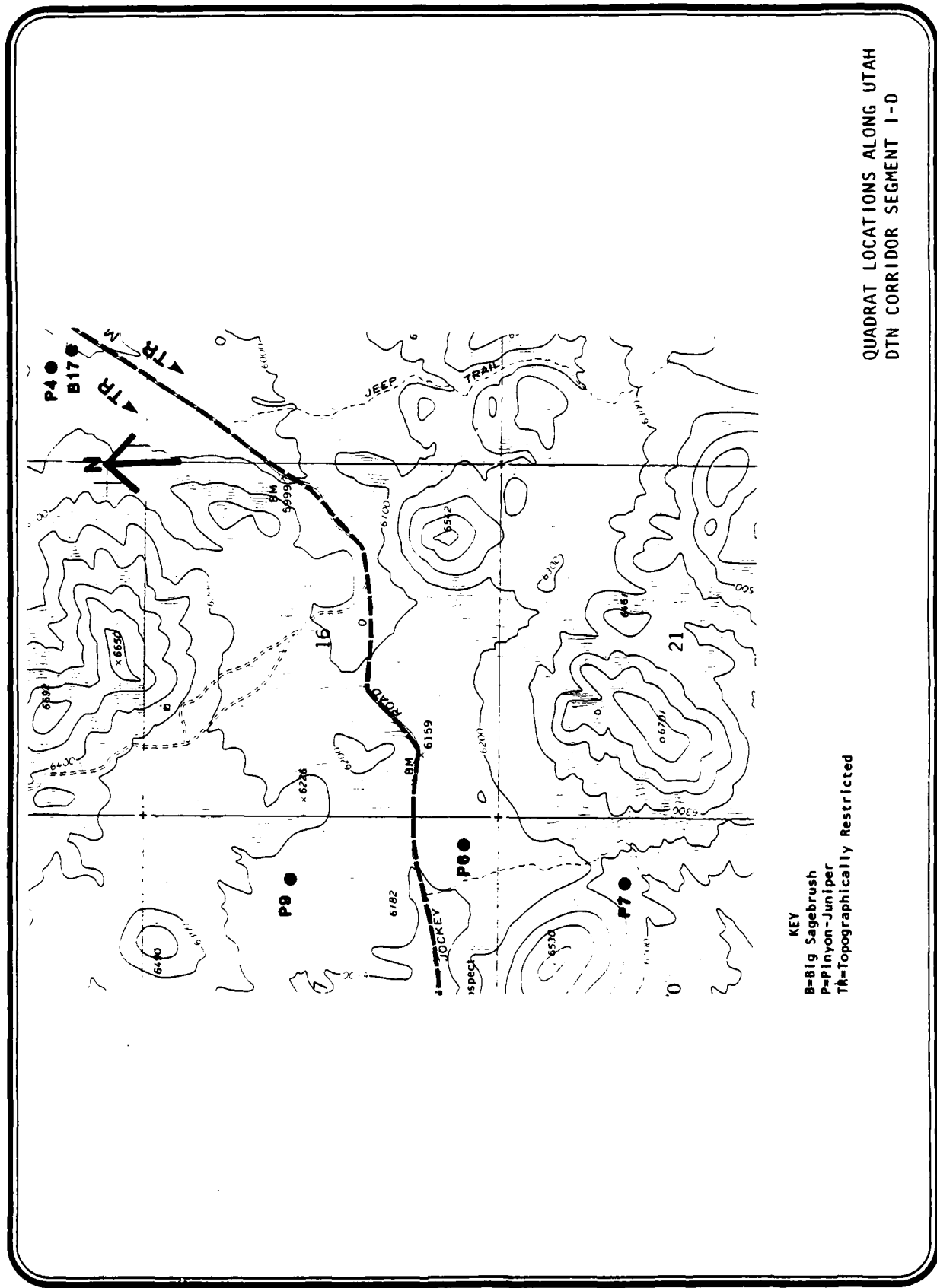


FIGURE 5-7d

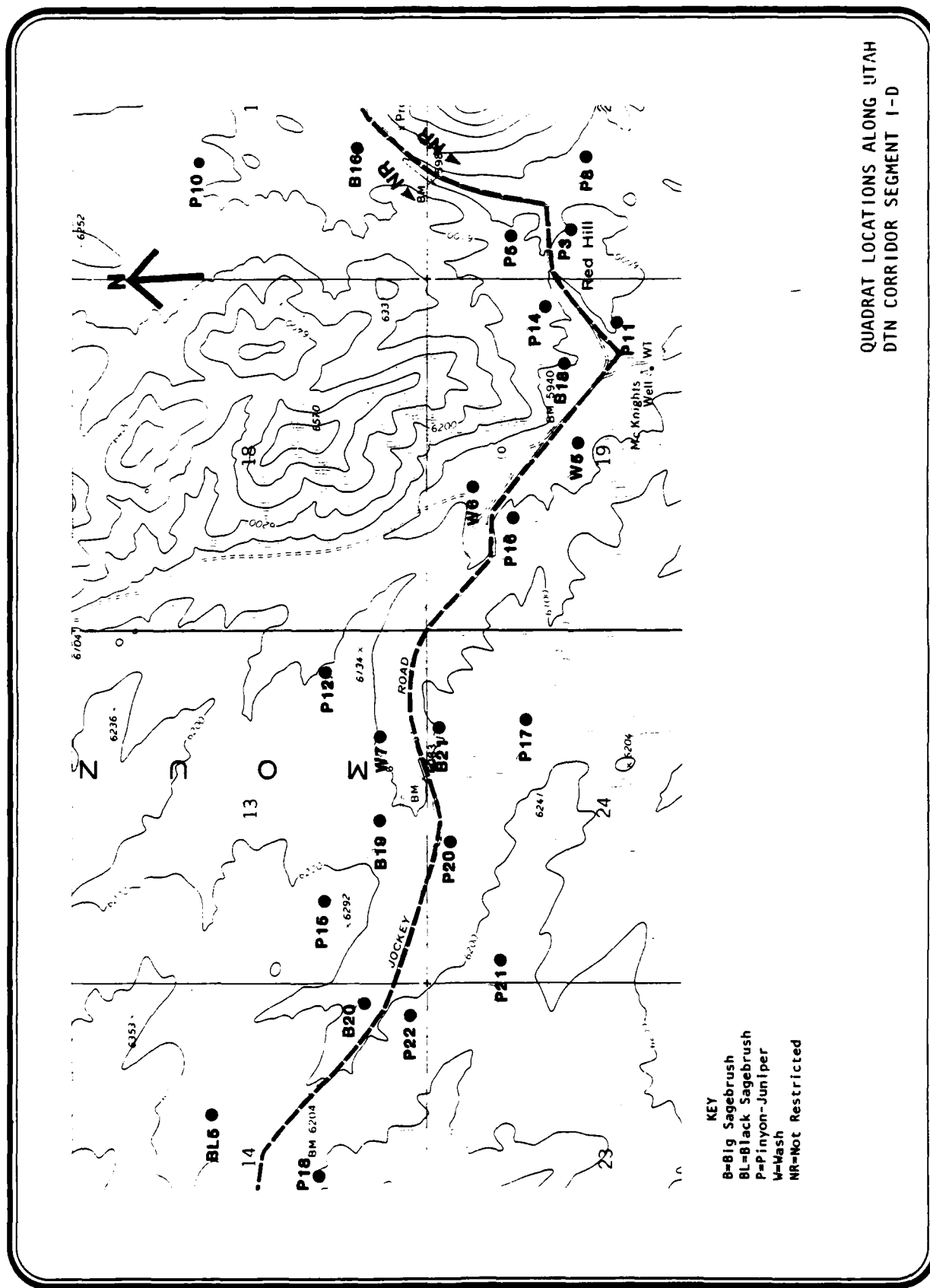


FIGURE 5-7c

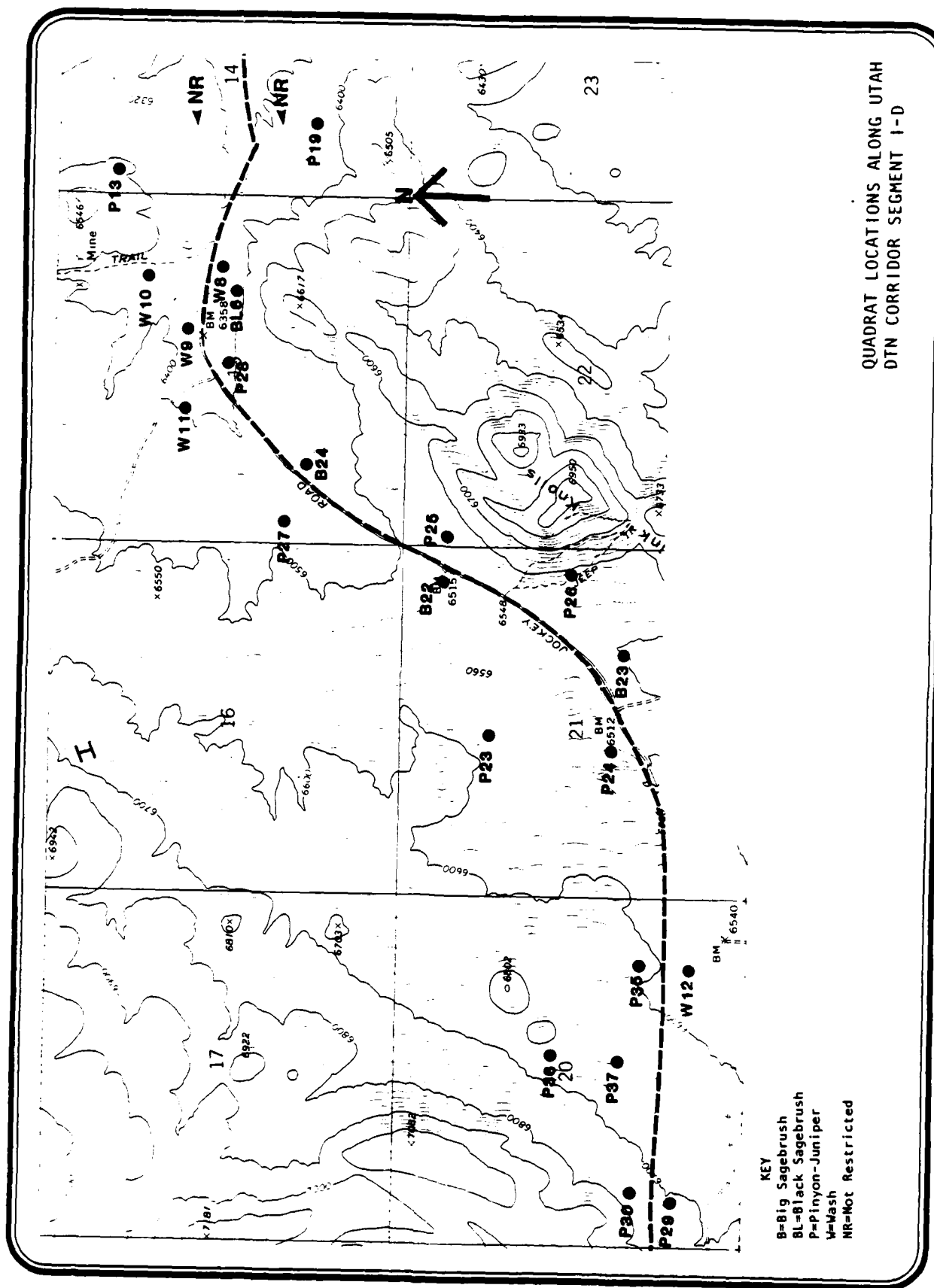


FIGURE 5-7f

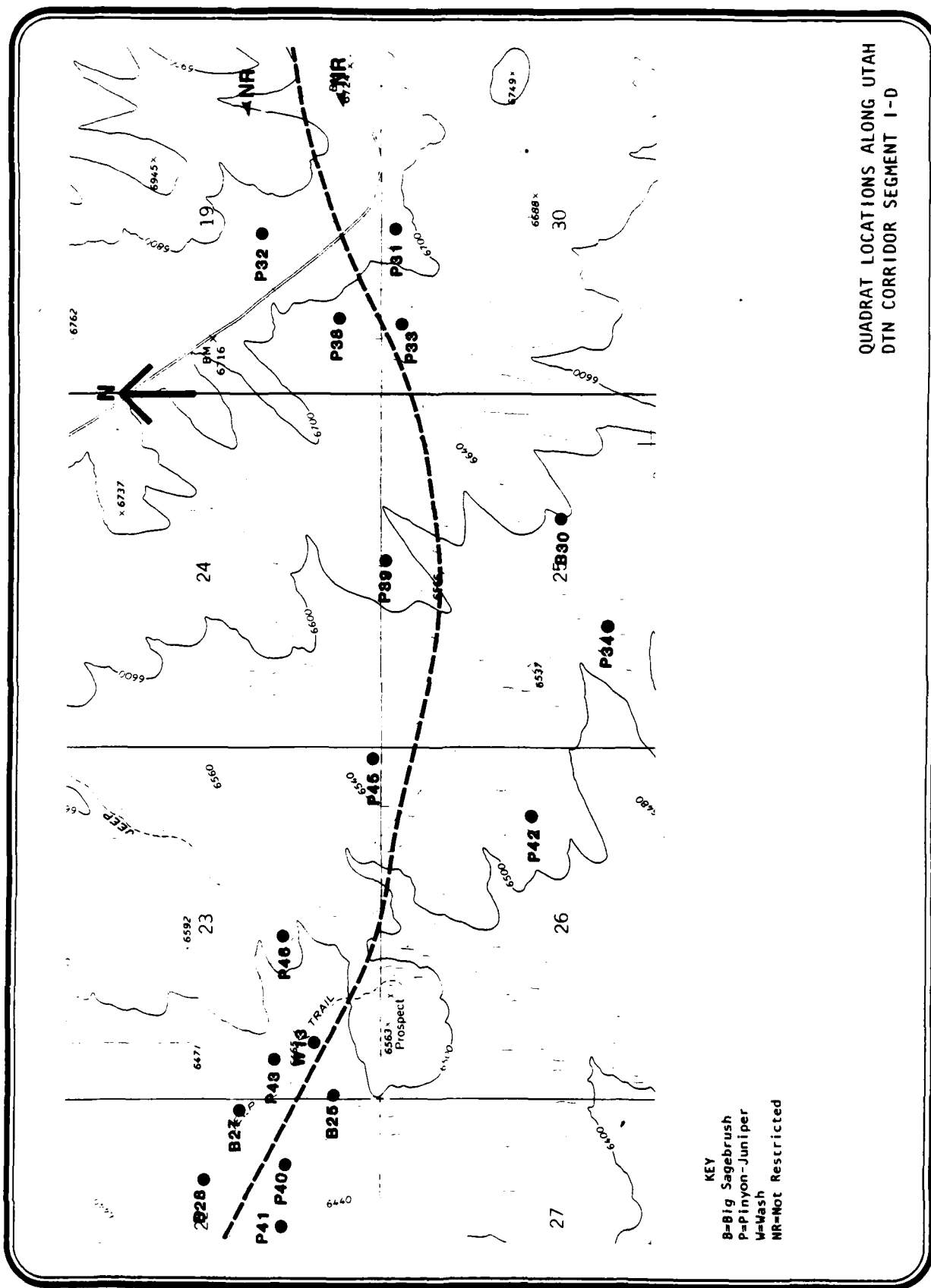


FIGURE 5-79



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Pinus monophylla). The pinyon-juniper association contained the largest number of plant species (64), and the second highest amount of cover (40.4 percent). The highest amount of cover (45.0 percent) was found in the winterfat association. This association also had the lowest number of species observed (5), because winterfat tended to occur in nearly pure stands.

Cacti included the common pricklypear (Opuntia polyacantha) and the rare Coryphantha vivipara var. rosea, listed as Currently Under Review in the Federal Register (1980).

#### 5.4.2 Overview of Wildlife

Wildlife observations from the Utah DTN Segment I-D study area are listed in Table 5-12, and area-specific data are contained in Appendix F.

Since wildlife are mobile, and releve quadrats are fairly small, wildlife observations obtained only from the releves would not have provided sufficient data on species composition, so observations were combined for 3-mile road segments. Because the road covers a large linear area, it was felt this would be preferable to grouping observations by vegetation associations, which might be scattered over many miles.

Eight species of mammals or mammal sign were observed within this DTN corridor segment. The most common mammal species was the black-tailed jackrabbit (Lepus californicus). The only game animal sign observed was mule deer (Odocoileus hemionus) tracks and scat.

TABLE 5-12

WILDLIFE SIGN AND SIGHTINGS ALONG  
UTAH DTN CORRIDOR SEGMENT I-D

Common Name	Scientific Name
<u>Mammals</u>	
Black-tailed jackrabbit	<u>Lepus californicus</u>
Desert cottontail	<u>Sylvilagus audubonii</u>
Chipmunk	<u>Eutamias sp.</u>
Woodrat	<u>Neotoma sp.</u>
Coyote	<u>Canis latrans</u>
Badger	<u>Taxidea taxus</u>
Mule deer	<u>Odocoileus hemionus</u>
Feral horse	<u>Equus caballus</u>
<u>Birds</u>	
Sharp-shinned hawk	<u>Accipter striatus</u>
Golden eagle	<u>Aquila chrysaetos</u>
Northern harrier	<u>Circus cyaneus</u>
American kestrel	<u>Falco sparverius</u>
Mourning dove	<u>Zenaida macroura</u>
Great horned owl	<u>Bubo virginianus</u>
Hairy woodpecker	<u>Dendrocopos villosus</u>
Common flicker	<u>Colaptes auratus</u>
Horned lark	<u>Eremophila alpestris</u>
Common raven	<u>Corvus corax</u>
Pinyon jay	<u>Gymnorhinus cyanocephalus</u>
Mountain chickadee	<u>Parus gambeli</u>
Plain titmouse	<u>Parus inornatus</u>
Common bushtit	<u>Psaltiriparus minimus</u>
Bewick's wren	<u>Thryomanes bewickii</u>
Rock wren	<u>Salpinctes obsoletus</u>
Bluebird	<u>Sialia sp.</u>
Northern oriole	<u>Icterus galbula</u>
Sage sparrow	<u>Amphispiza belli</u>
Chipping sparrow	<u>Spizella passerina</u>
Brewer's sparrow	<u>Spizella breweri</u>
<u>Reptiles</u>	
Desert horned lizard	<u>Phrynosoma platyrhinos</u>

TABLE 5-12 (Cont.)

<u>Common Name</u>	<u>Scientific Name</u>
<u>Reptiles (Cont.)</u>	
Short-horned lizard	<u>Phrynosoma douglassi</u>
Leopard lizard	<u>Crotaphytus wislizenii</u>
Side-blotched lizard	<u>Uta stansburiana</u>
Sagebrush lizard	<u>Sceloporus graciosus</u>
Western fence lizard	<u>Sceloporus occidentalis</u>
Plateau lizard	<u>Sceloporus undulatus</u>
Garter snake	<u>Thamnophis</u> sp.

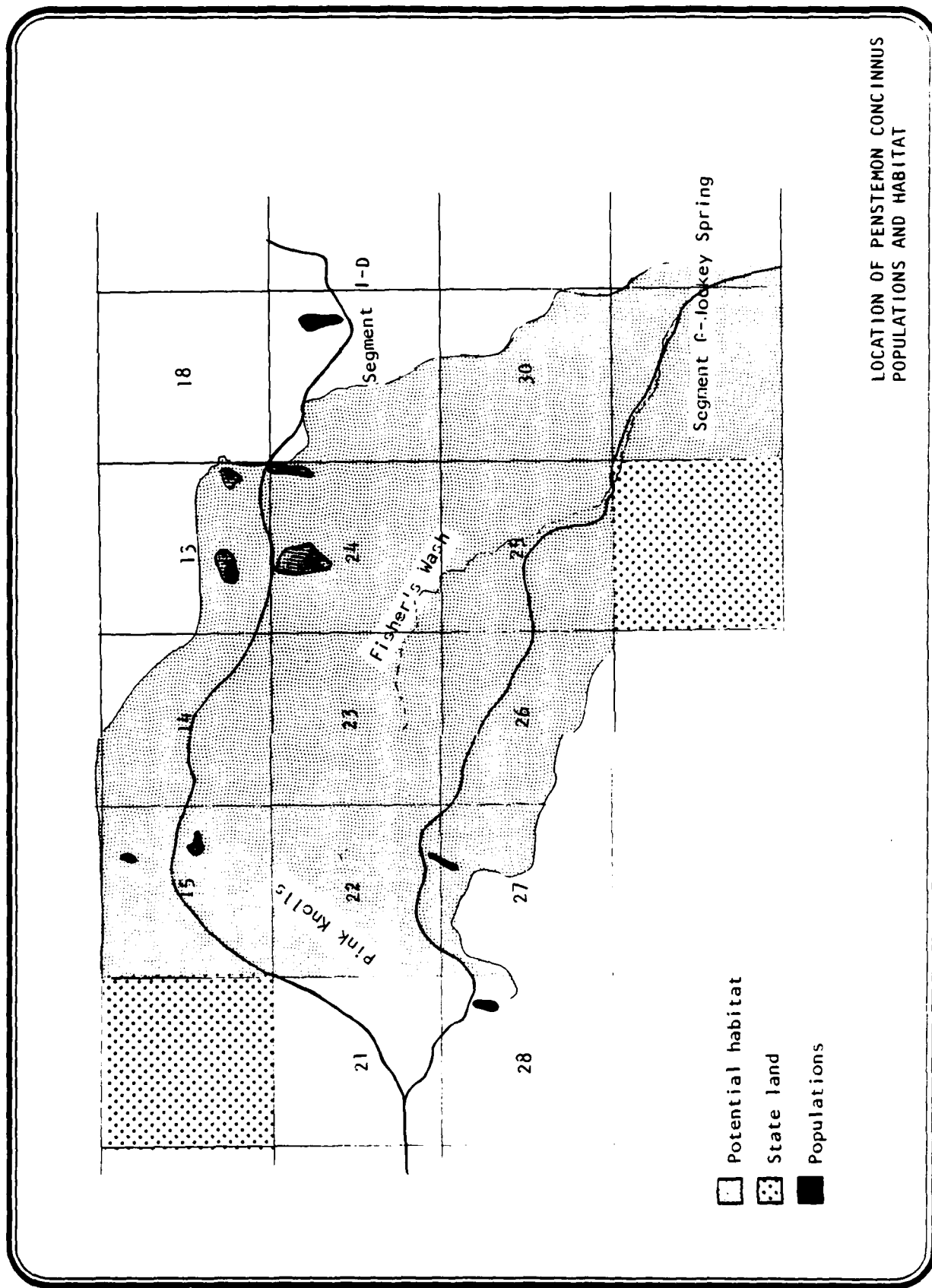
Twenty two species of birds, including several raptors were observed. Golden eagles (Aquila chrysaetos) were noted on three sites, and the sharp-shinned hawk (Accipiter striatus), northern harrier (Circus cyaneus), American Kestrel (Falco sparverius), and great horned owl (Bubo virginianus) were also noted. The only game bird observed was the mourning dove (Zenaida macroura). Seven species of common lizards and one garter snake (Thamnophis sp.) were observed during the survey.

#### 5.4.3 Species of Concern

No threatened or endangered animals were observed on the Utah DTN Segment I-D, although mule deer, protected as a game species, were noted.

Most birds in the area have protected status by special law such as the Bald Eagle Act or Migratory Bird Treaty Act. A large number of bird species were observed, including 5 species of raptors, generally a group of special concern to the state.

Several populations of the plant Penstemon concinnus, a species Currently Under Review in the Federal Register (1980a), were noted in the vicinity of this segment, and a large area between and surrounding portions of Segment I-D and Segment G-Jockey Spring lie within P. concinnus habitat. Location of the observed populations and the probable habitat boundary are shown in Figure 5-8.



LOCATION OF *PENSTEMON CONCINNUS*  
POPULATIONS AND HABITAT

FIGURE 5-8

## 5.5 UTAH DTN: SEGMENT G - JOCKEY SPRING

The biological survey of the DTN was made concurrently with the Utah OBTS sites, from August 17 through September 29, 1981. Segment G to Jockey Spring runs from the vicinity of Broze Knoll, in Iron County, Utah, to Jockey Spring in Beaver County, Utah. Parts of it were along existing unimproved roads. The road corridor was designated as non-restricted.

This segment covered approximately 10 miles, and a total of 59 releve quadrats were made along its length. As trapping transects and bird census transects were made in the adjacent OBTS areas, these were not repeated along the DTN corridor. Results of the DTN survey in this segment are discussed below.

### 5.5.1 Overview of Vegetation

Five major vegetation associations were observed on this DTN Segment. Of the 59 quadrats, there were 27 in a pinyon-juniper (Pinus-Juniperus) association, 5 in a black sagebrush (Artemisia nova) association, 11 in a big sagebrush (Artemisia tridentata) association, 8 in a rabbitbrush (Chrysothamnus sp.) association, and 8 in a wash association. Vegetation data are given by site in Appendix E. Table 5-13 contrasts the associations, and Table 5-14 lists the plant species observed. Figure 5-9 shows the quadrat locations.

The pinyon-juniper association contained the the largest number of species observed (57), and the greatest amount of vegetative cover (38.7 percent). Of the species observed in the pinyon-juniper association, 40 were classed as forbs or

TABLE 5-13

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED  
ALONG UTAH DYN CORRIDOR SEGMENT G - JOCKEY SPRING\*

Association Number of Sites	Pinyon-Juniper 27			Black Sagebrush 5			Big sagebrush 11			Rabbitbrush 8			Wash Areas 8		
	# Species	Avg. Cover (%)	# Species	# Species	Avg. Cover (%)	# Species	# Species	Avg. Cover (%)	# Species	# Species	Avg. Cover (%)	# Species	# Species	Avg. Cover (%)	# Species
Trees	3	28.8	1	0.8	0	0.0	1	1.9	2	4.5					
Shrubs/succulents	14	7.2	8	18.0	7	25.4	10	20.5	5	24.4					
Forbs	30	1.0	8	+	9	0.7	8	0.4	9	0.5					
Grasses	10	1.6	6	1.4	10	6.6	8	5.1	7	3.3					
Total															
Vegetative Cover	57	38.7	23	20.2	26	32.8	27	27.9	23	32.7					
Bare Ground	—	18.4	—	24.2	—	35.1	—	28.5	—	33.6					
Rock/Gravel	—	37.3	—	50.2	—	27.4	—	37.3	—	19.9					
Litter	—	20.2	—	4.6	—	5.2	—	4.3	—	18.0					

\* Based upon 59 releve quadrats in the area.

+ Trace.

TABLE 5-14

PLANT SPECIES OBSERVED ALONG UTAH  
DTN SEGMENT G - JOCKEY SPRING

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
ASTERACEAE			
<u>Artemisia nova</u>	Black sagebrush	S	BLS, PJ, R
<u>Artemisia tridentata</u>	Big sagebrush	S	BS, PJ, R, W
<u>Artemisia sp.</u>	Sagebrush	S	PJ, BLS
<u>Brickellia oblongifolia</u>	Brickellbush	S	PJ
<u>Chaenactis douglasii</u>	Douglas chaenactis	F	PJ
<u>Chrysothamnus greenii</u>	Greene's rabbit- brush	S	PJ, BS, BLS, R, W
<u>Chrysothamnus nauseosus</u>	Rubber rabbitbrush	S	W
<u>Chrysothamnus viscidiflorus</u>	Viscid rabbitbrush	S	PJ, BS, BLS, R
<u>Chrysothamnus sp.</u>	Rabbitbrush	S	PJ, BS
<u>Erigeron sp.</u>	Fleabane	F	PJ, BS
<u>Gutierrezia sarothrae</u>	Snakeweed	S	PJ, BS, BLS
<u>Haplopappus acaulis</u>	Haplopappus	F	PJ
<u>Leucelene ericoides</u>	Leucelene	F	PJ, BLS
<u>Lygodesmia spinosa</u>	Thorn skeletonweed	S	PJ
<u>Machaeranthera canescens</u>	Aster	F	PJ, BLS

<sup>1</sup> T = Tree; S = Shrub or succulent; F = Forb; G = Grass;  
GL = Grasslike.

<sup>2</sup> PJ = Pinyon-Juniper; BS = Big sagebrush; BLS = Black  
sagebrush; R = Rabbitbrush; W = Wash.



TABLE 5-14 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
BORAGINACEAE			
<u>Cryptantha</u> sp.	Catseye	F	BS,BLS,PJ
BRASSICACEAE			
<u>Descurainia</u> sp.	Tansy mustard	F	BS,R,W
<u>Lepidium montanum</u>	Montana pepperweed	F	PJ,R,W
<u>Physaria chambersii</u>	Twinpod	F	PJ
<u>Physaria</u> sp.	Twinpod	F	PJ
<u>Sisymbrium altissimum</u>	Tumble mustard	F	BS,D
<u>Stanleya pinnata</u>	Prince's plume	F	BS,W
<u>Streptanthella longirostris</u>	Streptanthella	F	BS
<u>Streptanthus cordatus</u>	Twist flower	F	PJ
CACTACEAE			
<u>Opuntia polyantha</u>	Prickly pear	S	PJ,BS,R
CARYOPHYLLACEAE			
<u>Paronychia</u> sp.	Nailwort	F	BLS
CHENOPODIACEAE			
<u>Atriplex canescens</u>	Fourwing saltbush	S	BS,W,R
<u>Ceratoides lanata</u>	Winterfat	S	R
<u>Sarcobatus vermiculatus</u>	Greasewood	S	BS
CUPRESSACEAE			
<u>Juniperus osteosperma</u>	Utah juniper	T	PJ,W,BLS,R

TABLE 5-14 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
EPHEDRACEAE			
<u>Ephedra nevadensis</u>	Nevada Mormon tea	S	PJ, BLS, R
<u>Ephedra viridis</u>	Mormon tea	S	PJ
EUPHORBIACEAE			
<u>Euphorbia glyptosperma</u>	Spurge	F	BLS, BS, W
<u>Euphorbia</u> sp.	Spurge	F	BLS, BS, R, W
FABACEAE			
<u>Astragalus calycosus</u>	Milkvetch	F	PJ, R
<u>Astragalus lentiginosus</u>	Milkvetch	F	PJ, BS
<u>Astragalus</u> sp.	Milkvetch	F	PJ, BS, BLS
<u>Lupinus</u> sp.	Lupine	F	PJ, BS, W
GENTIANACEAE			
<u>Frasera albomarginata</u>	Frasera	F	PJ
JUNCACEAE			
<u>Juncus</u> sp.	Rush	G1	BS
MALVACEAE			
<u>Sphaeralcea</u> sp.	Globemallow	F	R
NYCTAGINACEAE			
<u>Mirabilis</u> sp.	Four-o'clock	F	W

TABLE 5-14 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
ONAGRACEAE			
<u>Oenothera</u> sp.	Evening primrose	F	PJ,W
OROBANCHACEAE			
<u>Orobanche</u> sp.	Broomrape	F	BS
PINACEAE			
<u>Pinus edulis</u>	Pinyon pine	T	PJ,W
<u>Pinus monophylla</u>	Pinyon pine	T	PJ
POACEAE			
<u>Agropyron smithii</u>	Western wheatgrass	G	BS,W
<u>Aristida purpurea</u>	Purple threeawn	G	PJ,R
<u>Bouteloua gracilis</u>	Blue grama	G	PJ,BS,R,W
<u>Bromus tectorum</u>	Cheatgrass	G	PJ,BS,BLS, R,W
<u>Hilaria jamesii</u>	Galleta grass	G	PJ,BS,BLS, R,W
<u>Munroa squarrosa</u>	False buffalo- grass	G	PJ,R
<u>Oryzopsis hymenoides</u>	Indian ricegrass	G	PJ,BS,BLS, R,W
<u>Poa sandbergii</u>	Sandberg bluegrass	G	BS,BLS
<u>Poa</u> sp.	Bluegrass	G	PJ
<u>Sitanion hystrix</u>	Bottlebrush squirreltail	G	PJ,BS,BLS,W
<u>Sitanion</u> sp.	Squirreltail	G	PJ,BLS,BS,R
<u>Sporobolus cryptandrus</u>	Sand dropseed	G	BS,W

TABLE 5-14 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
<u>Stipa comata</u>	Needle-and-thread	G	PJ,BS,BLS,R
POLEMONIACEAE			
<u>Ipomopsis congesta</u>	Ballhead gilia	F	PJ
<u>Leptodactylon pungens</u>	Prickleygilia	S	PJ
<u>Phlox</u> sp.	Phlox	F	PJ,BLS
POLYGONACEAE			
<u>Eriogonum cernuum</u>	Nodding eriogonum	F	BS
<u>Eriogonum microthecum</u>	Slenderbush eriogonum	S	PJ,BLS,R
<u>Eriogonum shockleyi</u>	Shockley eriogonum	F	PJ,R,BLS
<u>Eriogonum</u> sp.	Eriogonum	F	PJ
ROSACEAE			
<u>Cowania mexicana</u>	Cliffrose	S	PJ
<u>Purshia tridentata</u>	Bitterbrush	S	PJ
SCROPHULARIACEAE			
<u>Cordylanthus parviflorus</u>	Bird's beak	F	PJ
<u>Penstemon concinnus</u>	Penstemon	F	
<u>Penstemon palmeri</u>	Palmer beardtongue	F	W
<u>Penstemon</u> sp.	Penstemon	F	PJ,R
VERBENACEAE			
<u>Verbena bracteata</u>	Verbena	F	W

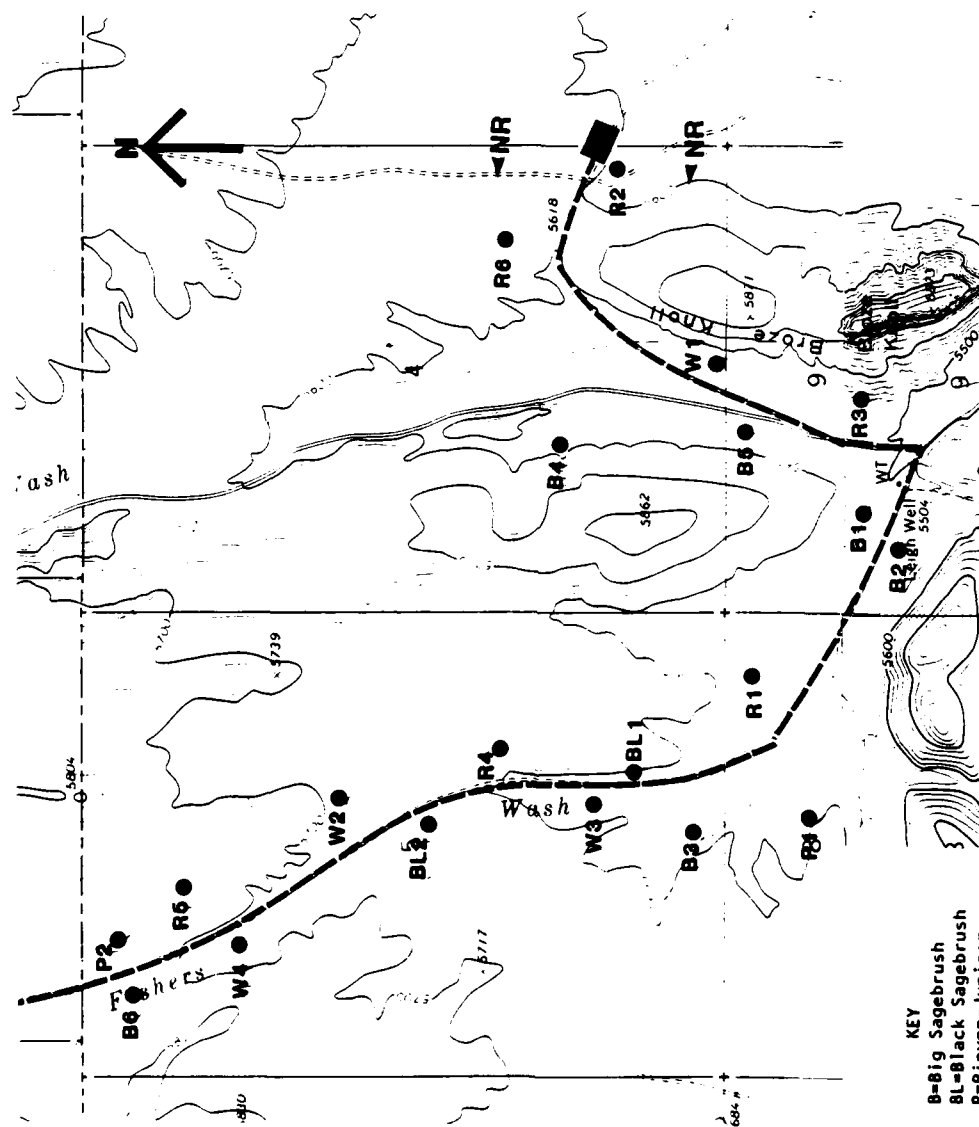
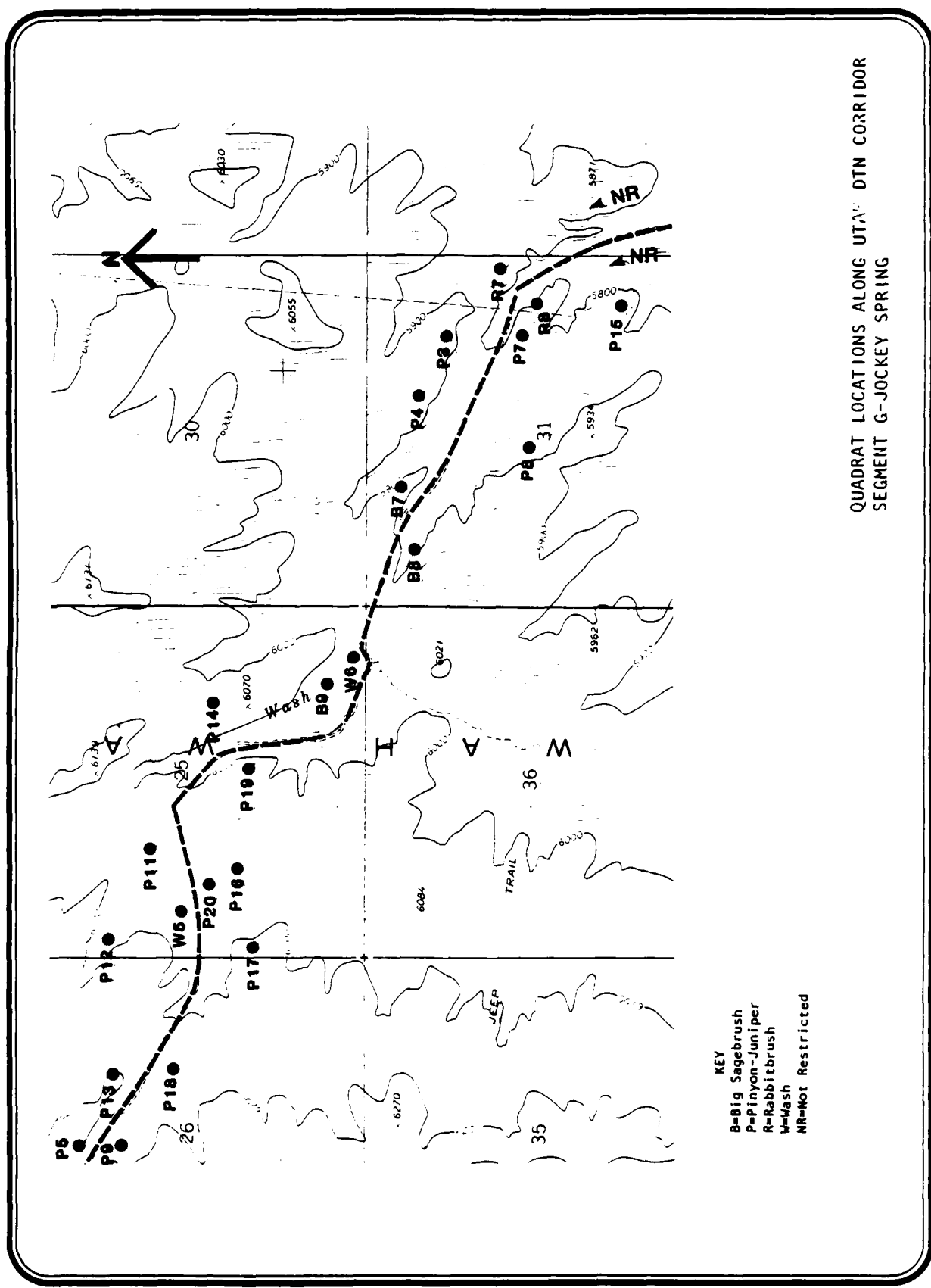
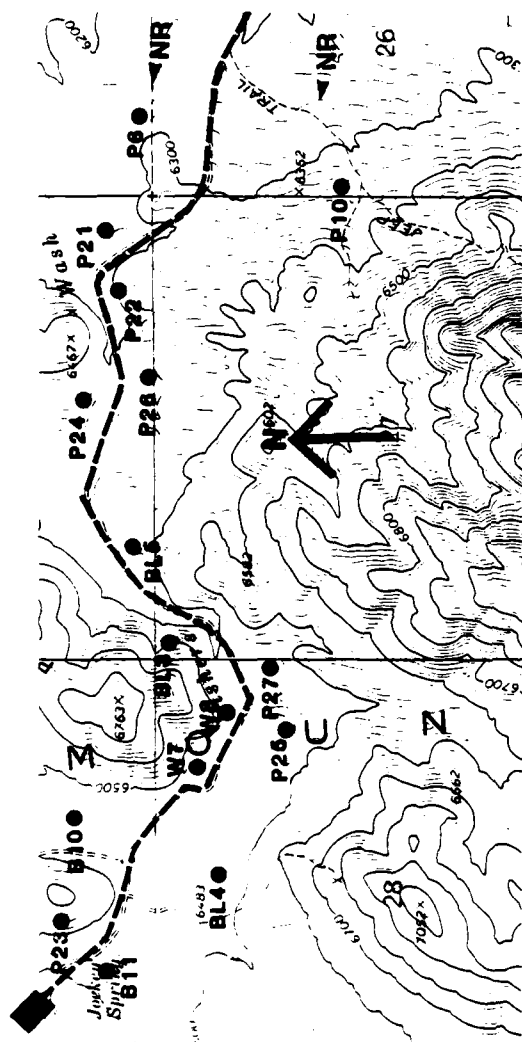


FIGURE 5-9a



QUADRAT LOCATIONS ALONG UTA DTN CORRIDOR  
SEGMENT G-JOCKEY SPRING

FIGURE 5-9b



KEY  
 B=Big Sagebrush  
 BL=Black Sagebrush  
 P=Pinyon-Juniper  
 W=Wash  
 NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH DTN CORRIDOR  
 SEGMENT G-JOCKEY SPRING

grasses, and only 17 were classed as shrubs or trees. However, shrubs and trees contributed the majority of the vegetative cover present in all associations. Forbs contributed one percent or less of the total vegetative cover in all associations. The only cactus observed within this DTN segment was Opuntia polyantha, the pricklypear.

#### 5.5.2 Overview of Wildlife

Since wildlife are mobile, and releve quadrats are fairly small, wildlife observations obtained only from the releves would have provided insufficient data on species composition, so observations were combined for 3-mile road segments. Because the road covers a large linear area, it was felt this would be preferable to grouping observations by vegetation associations, which might be scattered over many miles. Table 5-15 lists wildlife observed in this Utah DTN Segment and Appendix F provides data by road segment.

Eleven species of mammals or mammal sign were observed within this DTN segment. The most common species was the black-tailed jackrabbit (Lepus californicus). Game species sign included pronghorn antelope (Antilocapra americana) and mule deer (Odocoileus hemionus). Predators included coyote (Canis latrans) and badger (Taxidea taxus). Horse sign was also observed on one site.

Twenty-seven species of birds were observed in the study area. There were several raptors, including sharp-shinned hawks (Accipiter striatus), a Cooper's hawk (Accipiter cooperii), a



TABLE 5-15

WILDLIFE SIGN AND SIGHTINGS ALONG  
UTAH DTN CORRIDOR SEGMENT G - JOCKEY SPRING

Common Name	Scientific Name
<u>Mammals</u>	
Desert cottontail	<u>Sylvilagus audubonii</u>
Black-tailed jackrabbit	<u>Lepus californicus</u>
Cliff Chipmunk	<u>Eutamias dorsalis</u>
Squirrel(?)	<u>Ammospermophilus</u> sp.(?)
Woodrat	<u>Neotoma</u> sp.
Coyote	<u>Canis latrans</u>
Badger	<u>Taxidea taxus</u>
Skunk	<u>Mephitis</u> sp.
Mule deer	<u>Odocoileus hemionus</u>
Pronghorn antelope	<u>Antilocapra americana</u>
Feral horse	<u>Equus caballus</u>
<u>Birds</u>	
Sharp-shinned hawk	<u>Accipiter striatus</u>
Cooper's hawk	<u>Accipiter cooperii</u>
Golden eagle	<u>Aquila chrysaetos</u>
Northern harrier	<u>Circus cyaneus</u>
Prairie falcon	<u>Falco mexicanus</u>
American kestrel	<u>Falco sparverius</u>
Mourning dove	<u>Zenaidura macroura</u>
Common nighthawk	<u>Chordeiles minor</u>
Hairy woodpecker	<u>Dendrocopos villosus</u>
Say's phoebe	<u>Sayornis saya</u>
Scrub jay	<u>Aphelocoma coerulescens</u>
Common raven	<u>Corvus corax</u>
Pinyon jay	<u>Gymnorhinus cyanocephalus</u>
Mountain chickadee	<u>Parus gambeli</u>
Plain titmouse	<u>Parus inornatus</u>
Common bushtit	<u>Psaltiriparus minimus</u>
Bewick's wren	<u>Thryomanes bewickii</u>
Rock wren	<u>Salpinctes obsoletus</u>
Mountain bluebird	<u>Sialia currucoides</u>
Bluebirds	unidentified species
Loggerhead shrike	<u>Lanius ludovicianus</u>
Sage sparrow	<u>Amphispiza belli</u>
Chipping sparrow	<u>Spizella passerina</u>
Brewer's sparrow	<u>Spizella breweri</u>

TABLE 5-15 (Cont.)

<u>Common Name</u>	<u>Scientific Name</u>
<u>Reptiles</u>	
Leopard lizard	<u>Crotaphytus vislizenii</u>
Side-blotched lizard	<u>Uta stansburiana</u>
Sagebrush lizard	<u>Sceloporus graciosus</u>
Western fence lizard	<u>Sceloporus occidentalis</u>
Western whiptail	<u>Cnemidophorus tigris</u>

northern harrier (Circus cyaneus), prairie falcons (Falco mexicanus), an American kestrel (Falco sparverius), and a golden eagle (Aquila chrysaetos). The most frequently observed bird was the pinyon jay (Gymnorhinus cyanocephala).

Five species of lizard were observed, with the side-blotched lizard (Uta stansburiana) as the most frequently found species.

#### 5.4.3 Species of Concern

No threatened or endangered species were observed on this Utah DTN Segment, although mule deer and antelope, protected as game species, were noted.

Most birds in the area have protected status by special law such as the Migratory Bird Treaty Act or the Bald Eagle Act. A large number of bird species were observed, including 6 species of raptors, generally a group of special concern to the state.

No threatened or endangered plants were observed during the surveys in this area, although portions of Penstemon concinnus habitat are in the area (see Section 5.4.3 and Figure 5-8) and two populations were noted along this road segment. A search of the entire habitat would likely result in the identification of additional populations. P. concinnus is Currently Under Review in the Federal Register (1980a).

## 5.6 UTAH DTN: SEGMENT F-D

The biological survey of the DTN was made concurrently with that of the Utah OBTS sites, from August 17 through September 29, 1981. Segment F-D of the proposed road runs from approximately two miles northwest of Webster's Knolls in Iron County, Utah, to near Mackleprang Reservoir in Beaver County, Utah. Most of it is along existing unimproved roads. The majority of the road corridor was designated as non-restricted, except for a portion approximately four miles long near the northern end of the DTN segment. This was fully restricted because of a proposed wilderness area. This segment covered approximately 21 miles, and 77 releve quadrats were made along its length. Since trapping transects and bird census transects were made in the adjacent OBTS areas, these activities were not repeated along the DTN corridor. Results of the DTN survey in this segment are discussed below.

### 5.6.1 Overview of Vegetation

Six major vegetation associations were observed on this DTN corridor segment. Of the 77 quadrats, there were 26 in a pinyon-juniper (Pinus sp. - Juniperus osteosperma) association, 8 in a black sagebrush (Artemisia nova) association, 28 in a big sagebrush (Artemisia tridentata) association, 2 in a rabbitbrush (Chrysothamnus sp.) association, 5 in perennial grassland, and 8 in a wash association. Vegetation data are given by site in Appendix E. Table 5-16 contrasts the associations, and Table 5-17 lists the plant species observed. Figure 5-10 shows the quadrat locations.

TABLE 5-16

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED  
ALONG UTAH DTM CORRIDOR SEGMENT F-D\*

Association Number of Sites	Pinyon-Juniper 26			Black Sagebrush 8			Big sagebrush 28			Rabbitbrush 2			Perennial Grassland 5			Wash Areas 8		
	# Species	Avg. Cover (%)	# Species	# Species	Avg. Cover (%)	# Species	# Species	Avg. Cover (%)	# Species	# Species	Avg. Cover (%)	# Species	# Species	Avg. Cover (%)	# Species	# Species	Avg. Cover (%)	# Species
Trees	3	27.6	1	+	+	3	0.4	0.4	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0
Shrubs/succulents	13	9.1	9	18.6	17	18.6	18.6	18.6	2	28.0	6.2	4	43.6					
Forbs	23	0.2	9	0.4	21	0.4	0.4	0.4	1	+	+	9	0.5					
Grasses	7	2.4	11	5.5	14	8.4	8.4	8.4	4	13.0	27.0	6	1.3					
Total Vegetation Cover	46	39.9	30	25.1	55	28.1	28.1	28.1	7	41.0	33.2	19	45.9					
Bare Ground	—	22.0	—	26.7	—	33.6	33.6	33.6	—	35.5	25.6	—	25.7					
Rock/Gravel	—	29.1	—	43.5	—	32.1	32.1	32.1	—	20.0	36.4	—	17.4					
Litter	—	22.4	—	3.5	—	6.8	6.8	6.8	—	2.0	4.6	—	11.9					

\* Based upon 77 releve quadrats in the area.

+ Trace.

TABLE 5-17

PLANT SPECIES OBSERVED ALONG UTAH  
DTN SEGMENT F-D

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
ASTERACEAE			
<u>Artemisia frigida</u>	Fringed sagewort	S	BS
<u>Artemisia nova</u>	Black sagebrush	S	BLS, PJ, BS
<u>Artemisia tridentata</u>	Big sagebrush	S	BS, PJ, BLS, G, W
<u>Chaenactis douglasii</u>	Douglas chaenactis	F	PJ, BS
<u>Chrysothamnus greenii</u>	Greene's rabbit- brush	S	BS
<u>Chrysothamnus nauseosus</u>	Rubber rabbitbrush	S	W, BS
<u>Chrysothamnus viscidiflorus</u>	Viscid rabbitbrush	S	PJ, BS, G, BLS
<u>Chrysothamnus</u> sp.	Rabbitbrush	S	PJ, BLS, BS, R, G
<u>Erigeron pumilis</u>	Fleabane	F	BS
<u>Erigeron</u> sp.	Fleabane	F	BS
<u>Gutierrezia sarothrae</u>	Snakeweed	S	PJ, BS, BLS, G, W
<u>Leucelene ericoides</u>	Leucelene	F	PJ, BS, BLS
<u>Lygodesmia spinosa</u>	Thorn skeletonweed	S	BS
<u>Machaeranthera canescens</u>	Aster	F	BS
<u>Senecio multilobatus</u>	Butterweed	F	BS
<u>Townsendia</u> sp.	Easter daisy	F	BS

<sup>1</sup> T = Tree; S = Shrub or succulent; F = Forb; G = Grass.

<sup>2</sup> PJ = Pinyon-Juniper; BS = Big Sagebrush; BLS = Black sagebrush; G = Grassland; W = Wash.

TABLE 5-17 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
BORAGINACEAE			
<u>Cryptantha</u> sp.	Catseye	F	BS, BLS, PJ
BRASSICACEAE			
<u>Descurainia</u> <u>pinnata</u>	Tansy mustard	F	PJ, BS, W
<u>Lepidium</u> <u>densiflorum</u>	Peppergrass	F	PJ, BS, G
<u>Physaria</u> <u>chambersii</u>	Twinpod	F	PJ
<u>Streptanthus</u> <u>cordatus</u>	Twist flower	F	PJ
CACTACEAE			
<u>Coryphantha</u> <u>vivipara</u> var. <u>rosea</u>	Coryphantha	S	PJ
<u>Echinocereus</u> <u>triglochidiatus</u>	Hedgehog cactus	S	PJ, BS
<u>Opuntia</u> <u>erinacea</u>	Prickly pear	S	PJ, BS
<u>Opuntia</u> sp.	Opuntia	S	BS
CARYOPHYLLACEAE			
<u>Paronychia</u> sp.	Nailwort		
CHENOPODIACEAE			
<u>Ceratoides</u> <u>lanata</u>	Winterfat	S	BS, R, G
CUPRESSACEAE			
<u>Juniperus</u> <u>osteosperma</u>	Utah juniper	T	PJ, BS
EPHEDRACEAE			
<u>Ephedra</u> <u>nevadensis</u>	Mormon tea	S	BS
<u>Ephedra</u> <u>viridis</u>	Mormon tea	S	PJ, BS

TABLE 5-17 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
EUPHORBIACEAE			
<u>Euphorbia fendleri</u>	Fendler spurge	F	PJ
<u>Euphorbia</u> sp.	Spurge	F	PJ,W
FABACEAE			
<u>Astragalus calycosus</u>	Milkvetch	F	PJ
<u>Astragalus lentiginosus</u>	Milkvetch	F	BLS
<u>Astragalus</u> sp.	Milkvetch	F	PJ,BS,R,G,W
<u>Lupinus</u> sp.	Lupine	F	PJ,BS,W
<u>Dalea searlsiae</u>	Prairie clover	F	PJ
<u>Lotus utahensis</u>	Lotus	F	PJ
MALVACEAE			
<u>Sphaeralcea coccinea</u>	Scarlet globemallow	F	BS,BLS
<u>Sphaeralcea grossulariifolia</u>	Globemallow	F	BS
<u>Sphaeralcea</u> sp.	Globemallow	F	PJ,W,BLS,BS
ONAGRACEAE			
<u>Oenothera</u> sp.	Evening primrose	F	PJ,BS,BLS,W
PAPAVERACEAE			
<u>Argemone munita</u>	Prickly poppy	F	W

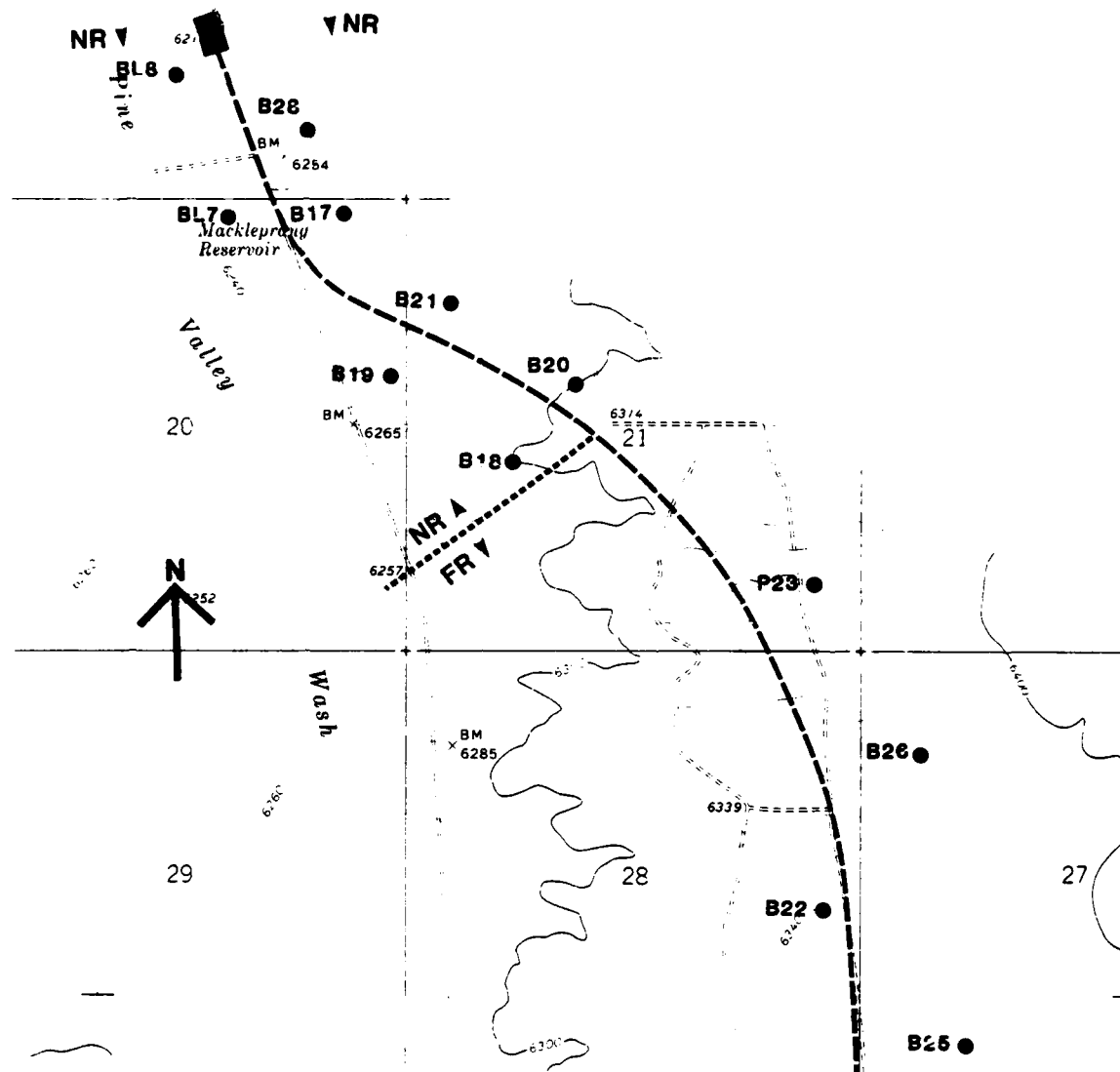


TABLE 5-17 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
PINACEAE			
<u>Pinus edulis</u>	Pinyon pine	T	PJ,BS
<u>Pinus monophylla</u>	Pinyon pine	T	PJ,BLS,BS
POACEAE			
<u>Agropyron cristatum</u>	Crested wheatgrass	G	BS,W
<u>Agropyron smithii</u>	Western wheatgrass	G	W,BS
<u>Agropyron spicatum</u>	Bluebunch wheatgrass	G	BLS
<u>Aristida purpurea</u>	Purple threeawn	G	PJ,BS,BLS,W
<u>Bouteloua gracilis</u>	Blue grama	G	PJ,BS
<u>Bromus tectorum</u>	Cheatgrass	G	PJ,BS,BLS, R,G,W
<u>Hilaria jamesii</u>	Galleta grass	G	PJ,BS,BLS, R,G
<u>Koeleria cristata</u>	Prairie junegrass	G	BS,BLS
<u>Oryzopsis hymenoides</u>	Indian ricegrass	G	PJ,BS,BLS, R,G,W
<u>Poa sandbergii</u>	Sandberg bluegrass	G	BS,BLS
<u>Sitanion hystrix</u>	Bottlebrush squirreltail	G	W,BLS,BS,G
<u>Sitanion jubatum</u>	Squirreltail	G	PJ
<u>Sporobolus cryptandrus</u>	Sand dropseed	G	BLS,R,G
<u>Sporobolus</u> sp.	Dropseed	G	BS
<u>Stipa comata</u>	Needle-and-thread	G	BS,BLS,W
<u>Stipa</u> sp.	Needlegrass	G	BS

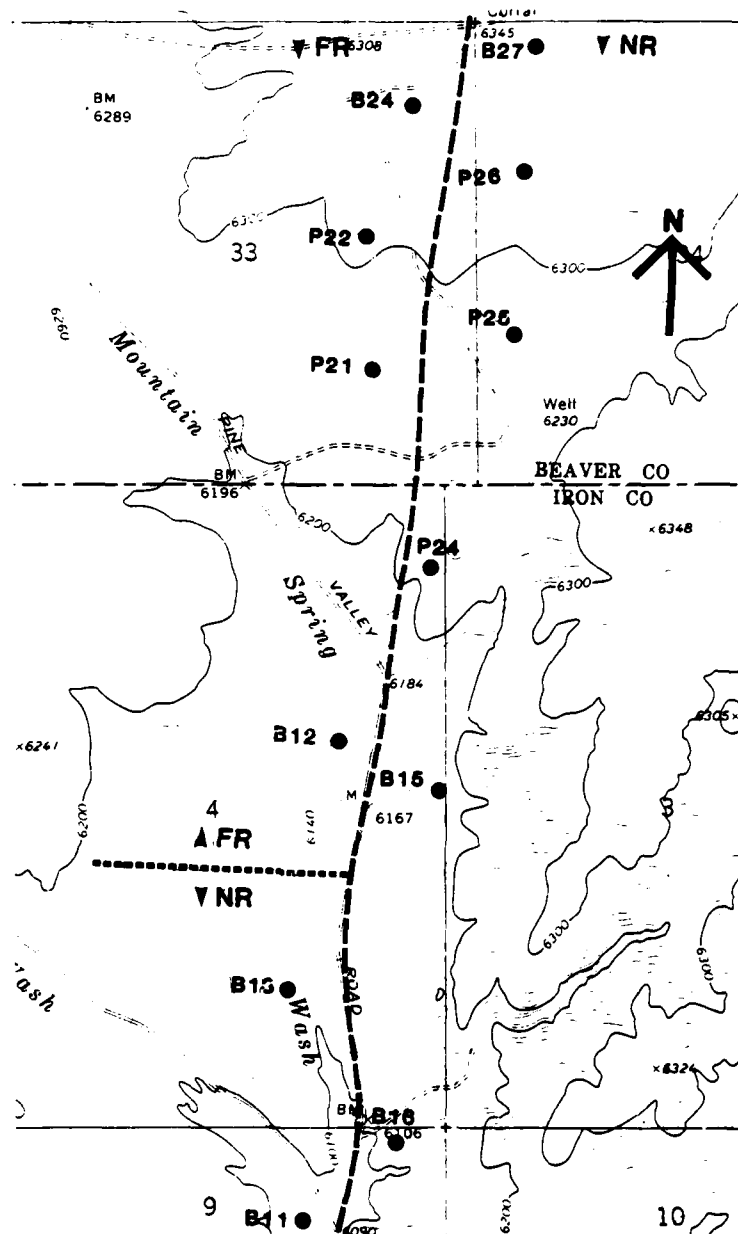
TABLE 5-17 (Cont.)

Scientific Name	Common Name	Growth <sup>1</sup> Form	Habitat <sup>2</sup> Type
POLEMONIACEAE			
<u>Ipomopsis congesta</u>	Ballhead gilia	F	PJ, BLS, W
<u>Leptodactylon pungens</u>	Prickleygilia	S	PJ, BS, BLS, W
<u>Phlox</u> sp.	Phlox	F	PJ, BS, BLS
POLYGONACEAE			
<u>Eriogonum cernuum</u>	Nodding eriogonum	F	PJ, BS, G
<u>Eriogonum microthecum</u>	Slenderbush eriogonum	S	PJ, BS, BLS
<u>Eriogonum ovalifolium</u>	Cushion eriogonum	F	PJ
<u>Eriogonum shockleyi</u>	Shockley eriogonum	F	BS
<u>Eriogonum</u> sp.	Eriogonum	F	PJ, BS
ROSACEAE			
<u>Cowania mexicana</u>	Cliffrose	S	PJ, BS
<u>Purshia tridentata</u>	Bitterbrush	S	PJ
SANTALACEAE			
<u>Comandra umbellata</u>	Bastard toadflax	F	PJ, BLS
SCROPHULARIACEAE			
<u>Cordylanthus parviflorus</u>	Bird's beak	F	PJ
<u>Penstemon</u> sp.	Penstemon	F	PJ, BS, BLS
SOLANACEAE			
<u>Nicotiana attenuata</u>	Coyote tobacco	F	W



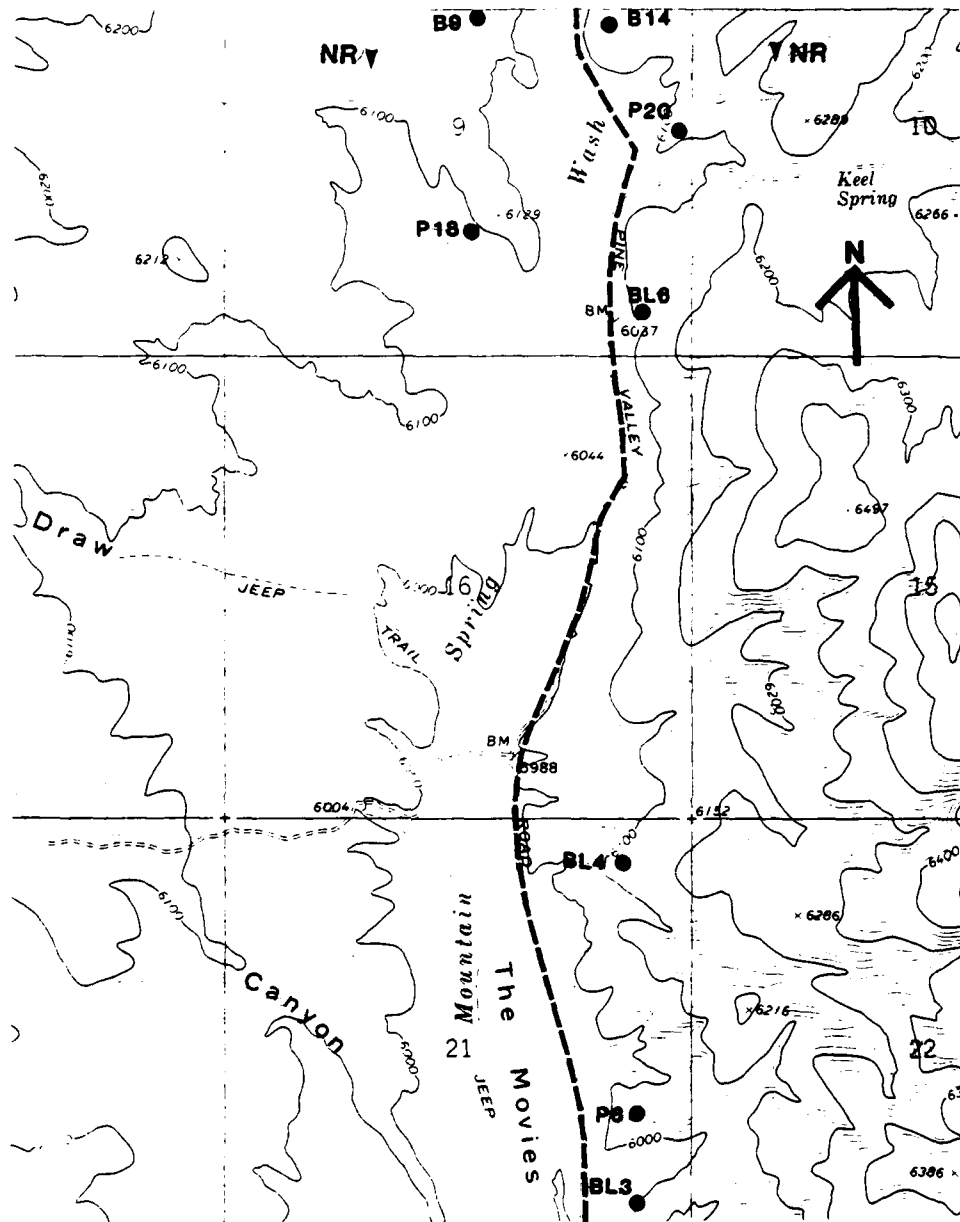
KEY  
 B=Big Sagebrush  
 BL=Black Sagebrush  
 P=Pinyon-Juniper  
 NR=Not Restricted  
 FR=Fully Restricted

QUADRAT LOCATIONS ALONG UTAH  
 DTN CORRIDOR SEGMENT F-D



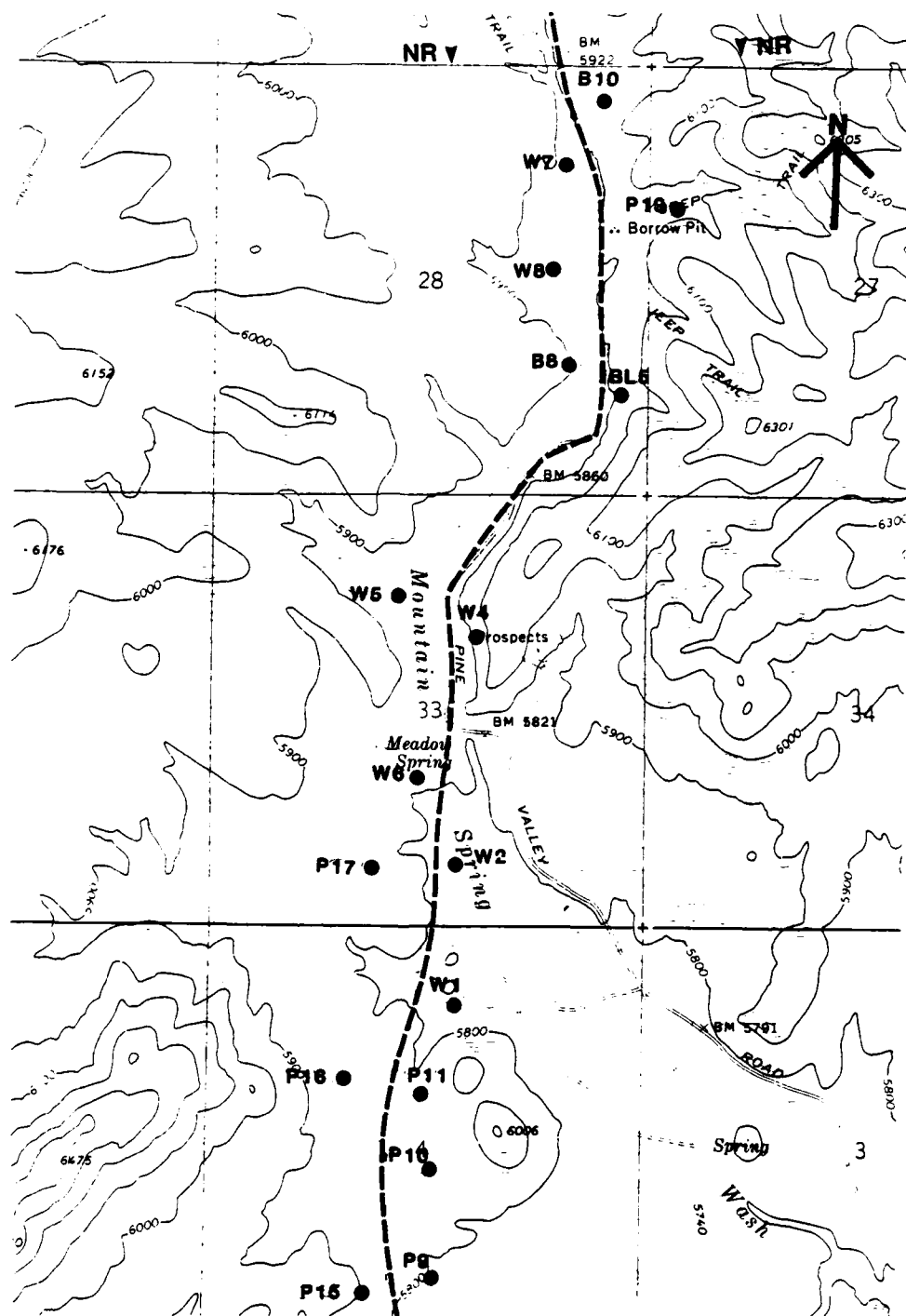
KEY  
 B=Big Sagebrush  
 P=Pinyon-Juniper  
 NR=Not Restricted  
 FR=Fully Restricted

QUADRAT LOCATIONS ALONG UTAH  
 DTN CORRIDOR SEGMENT F-D



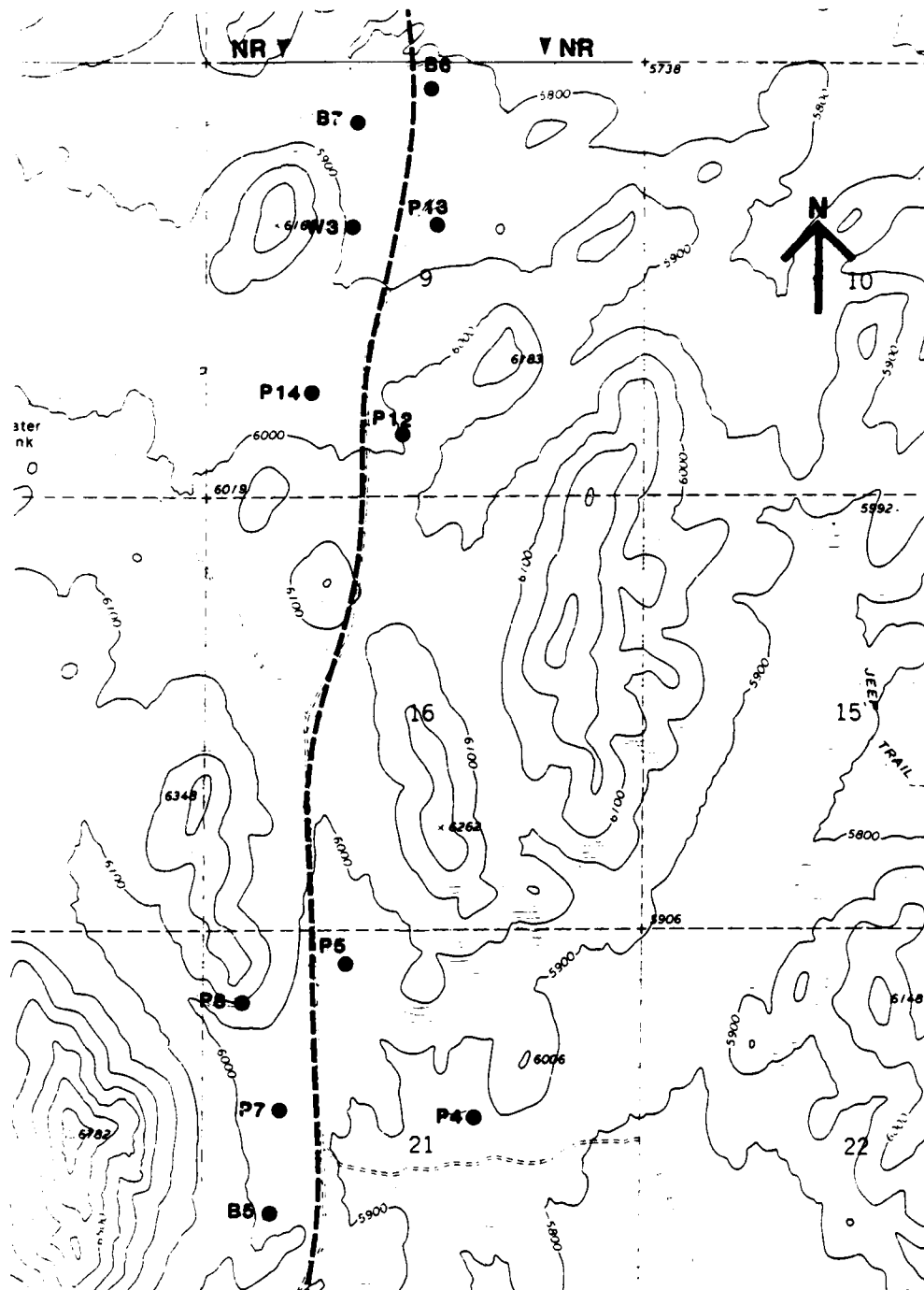
KEY  
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 BL=Black Sagebrush  
 P=Pinyon-Juniper  
 NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH  
 DTN CORRIDOR SEGMENT F-D



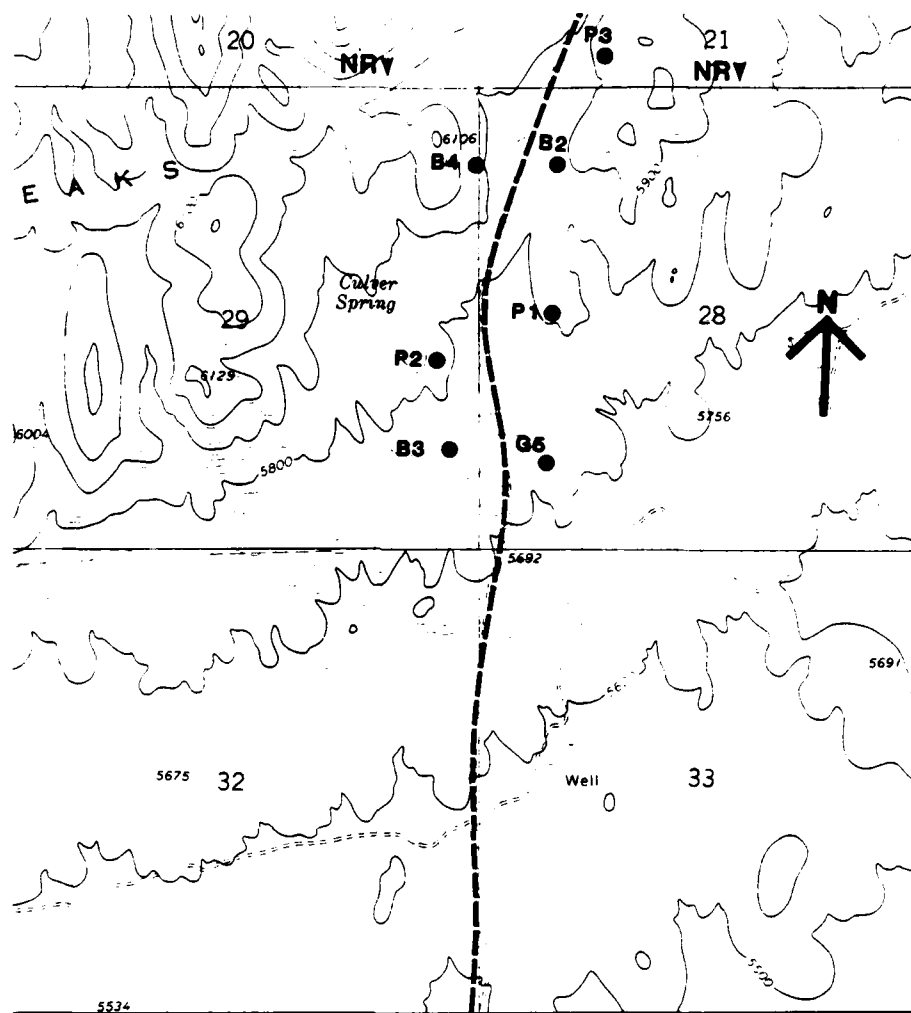
KEY  
 B=Big Sagebrush  
 BL=Black Sagebrush  
 P=Pinyon-Juniper  
 W=Wash  
 NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH  
 DTN CORRIDOR SEGMENT F-D



KEY  
 B=Big Sagebrush  
 P=Pinyon-Juniper  
 W=Wash  
 NR=Not Restricted

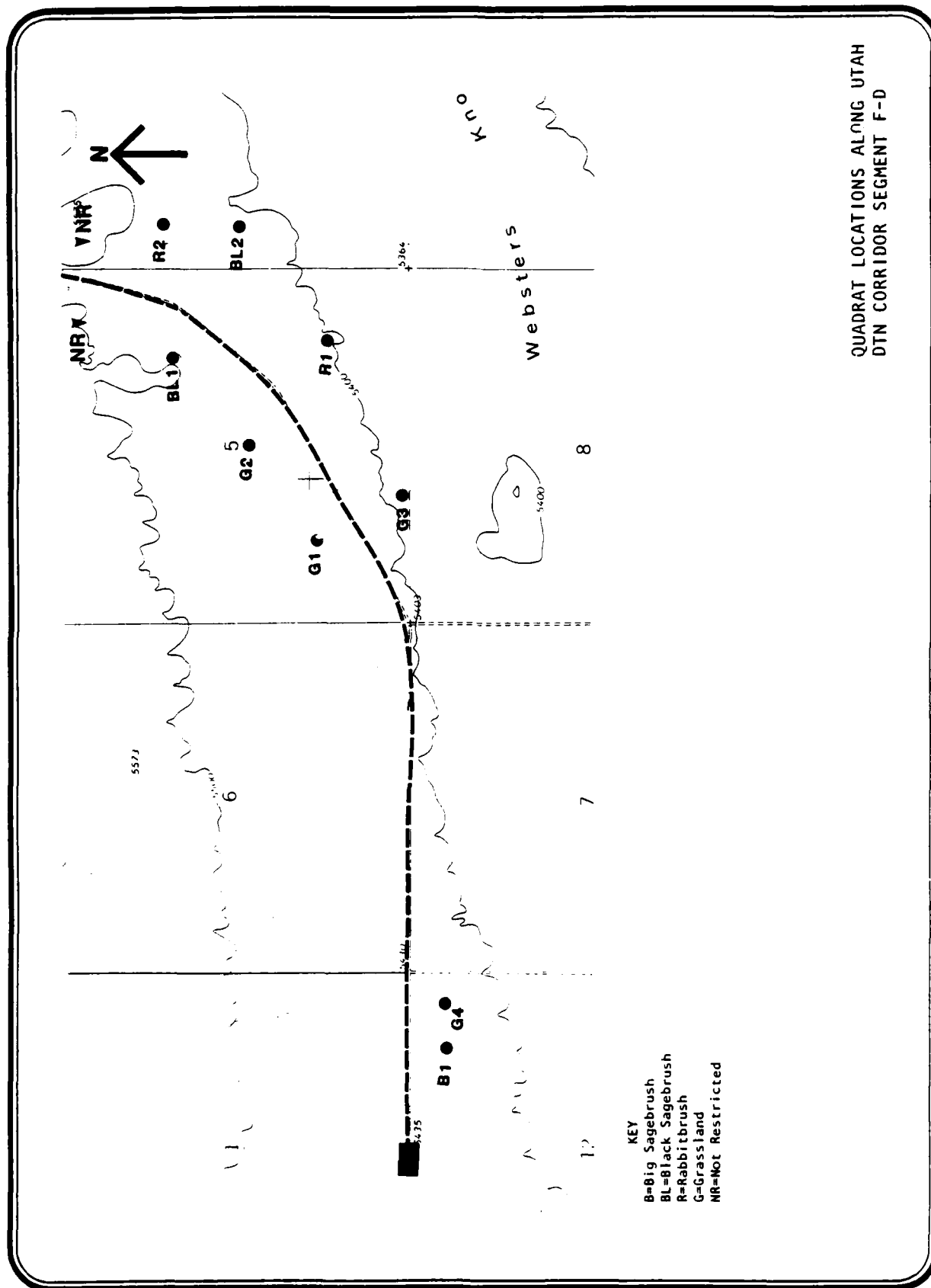
QUADRAT LOCATIONS ALONG UTAH  
 DTN CORRIDOR SEGMENT F-D



KEY  
 B=Big Sagebrush  
 G=Grassland  
 P=Pinyon-Juniper  
 NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH  
 DTN CORRIDOR SEGMENT F-D





QUADRAT LOCATIONS ALONG UTAH  
DTN CORRIDOR SEGMENT F-D

FIGURE 5-10g

The greatest amount of vegetative cover (45.9 percent) was observed in wash areas, and the lowest amount (25.1 percent) was observed in the black sagebrush association. The largest number of species (55) was observed in the big sagebrush association, and the smallest number of species (7) was found in the rabbitbrush association.

Trees (mostly Juniperus sp.) were found in three associations; the pinyon-juniper association, the black sagebrush association and the big sagebrush association. Shrubs were present in all associations, and formed the greatest portion of the vegetative cover in all but the pinyon-juniper and perennial grassland associations. Forbs were present in all associations, but never provided more than 6 percent of the total vegetative cover.

Cacti observed in the study area included the common prickly-pear (Opuntia polyacantha), the less common hedgehog cactus (Echinocereus triglochidiatus) and the rare Coryphantha vivipara var. rosea, listed as Currently Under Review in the 1980 Federal Register.

#### 5.6.2 Overview of Wildlife

Since wildlife are mobile, and releve quadrats are fairly small, wildlife observations obtained only from the releves would have provided insufficient data on species distribution, so observations were combined for 3-mile road segments. Because the road covers a large linear area, it was felt this would be preferable to grouping wildlife observations by vegetation associations, which might be scattered over many miles. Table 5-18 lists wildlife observed on this Utah DTN Segment, and Appendix F gives data by road segment.

TABLE 5-18

WILDLIFE SIGN AND SIGHTINGS ALONG  
UTAH DTN CORRIDOR SEGMENT F-D

Common Name	Scientific Name
<u>Mammals</u>	
Black-tailed jackrabbit	<u>Lepus californicus</u>
Desert cottontail	<u>Sylvilagus audubonii</u>
Cliff chipmunk	<u>Eutamias dorsalis</u>
Pocket gopher	<u>Family Geomyidae</u>
Woodrat	<u>Neotoma sp.</u>
Coyote	<u>Canis latrans</u>
Feral horse	<u>Equus caballus</u>
Pronghorn antelope	<u>Antilocapra americana</u>
Mule deer	<u>Odocoileus hemionus</u>
<u>Birds</u>	
Red-tailed hawk	<u>Buteo jamaicensis</u>
Northern harrier	<u>Circus cyaneus</u>
American kestrel	<u>Falco sparverius</u>
Screech owl	<u>Otus asio</u>
Common flicker	<u>Colaptes auratus</u>
Horned lark	<u>Eremophila alpestris</u>
Scrub jay	<u>Aphelocoma coerulescens</u>
Common raven	<u>Corvus corax</u>
Pinyon jay	<u>Gymnorhinus cyanocephalus</u>
Mountain chickadee	<u>Parus gambeli</u>
Plain titmouse	<u>Parus inornatus</u>
Common bushtit	<u>Psaltiriparus minimus</u>
Nuthatch	<u>Sitta sp.</u>
Bewick's wren	<u>Thryomanes bewickii</u>
Rock wren	<u>Salpinctes obsoletus</u>
Loggerhead shrike	<u>Lanius ludovicianus</u>
Shrike sp.	<u>Lanius sp.</u>
Western meadowlark	<u>Sturnella neglecta</u>
Rufous-sided towhee	<u>Pipilo erythrophthalmus</u>
Vesper sparrow	<u>Poocetes gramineus</u>
Sage sparrow	<u>Amphispiza belli</u>
Brewer's sparrow	<u>Spizella breweri</u>
<u>Reptiles</u>	
Short-horned lizard	<u>Phrynosoma douglassi</u>
Side-blotched lizard	<u>Uta stansburiana</u>
Sagebrush lizard	<u>Sceloporus graciosus</u>

Nine mammal species or their sign were observed in the study area. The most common mammal species was the black-tailed jackrabbit (Lepus californicus). Game species included mule deer (Odocoileus hemionus) and pronghorn antelope (Antilocapra americana). The only predator sign observed in the area was that of the coyote (Canis latrans).

Twenty-one species of birds were observed in the study area. Brewer's sparrow (Spizella breweri) and pinyon jay (Gymnorhinus cyanocephala) were the most common birds observed in the area. Raptor observations included the red-tailed hawk (Buteo jamaicensis) and northern harrier (Circus cyaneus). Three species of lizards were the only reptiles observed.

#### 5.6.3 Species of Concern

No threatened or endangered animal species were observed along this DTN Segment, although mule deer and antelope, protected as game species, were both noted.

Most birds in the area have protected status by special law such as the Migratory Bird Treaty Act or Bald Eagle Act. A large number of bird species were observed, including 4 species of raptors, generally a group of special concern to the state.

Several individuals of Coryphantha vivipara var. rosea, a cactus listed as Currently Under Review in the Federal Register (1980a), were observed in the pinyon-juniper association.

## 6.0 SUMMARY

In August and September of 1981, a biological survey was conducted at four Operational Base Test Sites (OBTS) and adjacent portions of the Designated Transportation Network (DTN) in Nevada and Utah. The Nevada survey included samples within one 6500 acre site in Coyote Spring Valley and a surrounding buffer zone approximately one mile wide, 4 miles of connecting road, and approximately 64 miles of DTN. The Utah surveys included samples within two sites in the vicinity of Milford of approximately 6000 and 3200 acres, and one site near Beryl of approximately 6400 acres. A buffer zone approximately one mile wide surrounding each site and approximately 49 miles of DTN were also surveyed in Utah.

The surveys were designed to provide an overview of vegetation associations and the larger and/or more important associated organisms expected in the area. The survey was designed primarily as an inventory, and this report is basically a data compilation; it does not discuss ecosystem relationships. Background information on many of the wildlife species is available from earlier reports (Fugro 1981, EDAW 1981).

The study areas and results are briefly summarized in Table 6-1 below. This table is not meant to provide a comparative evaluation of the areas, as their sizes varied widely, and sampling methodology was designed to provide maximum information on each site, rather than to provide equivalence in percentage of sample areas and other factors which would be necessary for statistical evaluation.

TABLE 6-1

BIOLOGICAL RESOURCES OBSERVED ON THE NEVADA AND UTAH STUDY AREAS  
AUGUST AND SEPTEMBER 1981

	Approximate Study Area (Buffer Zone)*	# Relieve Quadrats	Botanical Resources		Wildlife Resources			
			Vegetation Associations	Plant Species (Families)	Mammal Species	Bird Species	Reptile Species	
Coyote OBTS/ Connecting Road	6500(3400) 4 miles	126	5	60 (18)	10	9		8
Nevada DTN	64 miles	214	6	98 (24)	9	20		7
Milford Preferred OBTS	6000(10000)	122	5	71 (23)	12	31		9
Milford Alternate OBTS	3200(5400)	106	6	87 (26)	13	25		7
Beryl Preferred OBTS	6400(7000)	92	5	76 (22)	12	36		5
Utah DTN Segment I-D	20 miles	113	6	84 (20)	8	22		7
Utah DTN Segment G- Jockey Spring	8 miles	59	5	72 (23)	11	27		5
Utah DTN Segment F-D	21 miles	76	6	62 (15)	9	21		3

\* Measurements in acres, unless otherwise specified.

However, it can be noted that although the Coyote OBTS was the largest of the four OBTS areas, less variety of plants (both families and species), and many fewer bird species were observed. In contrast, the Milford Alternate Site, approximately half the size of the other areas, appeared to contain the greatest number of plant associations, families, and species, and the greatest number of mammal species. Many bird species were also observed. Because of the greater variety of associations, the Milford Alternate Site was relatively more heavily sampled than the other areas.

The species lists contained in the report provide an overview of each area but it should be recognized that both plant and animal species are often seasonal and unevenly distributed. The survey was not undertaken during the optimum period; a May survey would undoubtedly add a number of plant species to the listing. The wildlife species present may also vary depending upon migration, hibernation, seasonal range changes and other factors; a yearlong survey would provide a more complete listing of wildlife species using the area.

Except for 2 bald eagles noted in the Milford Preferred OBTS, no threatened or endangered species were observed in the study areas, although scattered individuals of Coryphantha vivipara, listed as Currently Under Review in the Federal Register (1980a), were observed in some locations.

One area stands out as being more likely to contain rare plants than others. A number of scattered populations of Penstemon concinnus were observed between the DTN segments I-D and G-Jockey Spring near Fisher's Wash. A large portion of the area is potential habitat for this plant, and a more in-depth survey would likely locate more populations. The populations and habitat are mapped in Section 5.4.

## 7.0 REFERENCES CITED

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APPENDIX A

BIRD CENSUS  
TRANSECT  
RESULTS

TABLE A-1

BIRD SPECIES OBSERVED ON THE  
COYOTE OBTS BIRD TRANSECT\*  
AUGUST 8-10, 1981

Species	Date	Number Seen	Number Heard
Rough-winged swallow	8/8/81	0	0
( <u>Stelgidopteryx</u>	8/9/81	0	0
<u>ruficollis</u> )	8/10/81	1	0
Loggerhead strike	8/8/81	0	0
( <u>Lanius ludovicianus</u> )	8/9/81	0	0
	8/10/81	1	0

\* T11S, R63E, 34, NE/SW

TABLE A-2

BIRD SPECIES OBSERVED ON THE  
MILFORD PREFERRED OBTS BIRD TRANSECTS  
AUGUST 25-27, 1981

Species	Date	Number Seen	Number Heard
Transect 1*			
Mourning dove	8/25/81	3	0
( <u>Zenaida macroura</u> )	8/26/81	2	1
	8/27/81	2	1
Horned lark	8/25/81	0	0
( <u>Eremophila alpestris</u> )	8/26/81	0	0
	8/27/81	0	2
Pinyon jay	8/25/81	1	0
( <u>Gymnorhinus</u>	8/26/81	0	0
<u>cyanocepala</u> )	8/27/81	0	0
Mockingbird	8/25/81	0	0
( <u>Mimus polyglottos</u> )	8/26/81	0	0
	8/27/81	1	0
Sage sparrow	8/25/81	16	5
( <u>Amphispiza belli</u> )	8/26/81	6	3
	8/27/81	13	4
Brewer's sparrow	8/25/81	4	0
( <u>Spizella breweri</u> )	8/26/81	4	4
	8/27/81	1	3
Transect 2**			
Northern harrier	8/25/81	0	0
( <u>Circus cyaneus</u> )	8/26/81	0	0
	8/27/81	1	0
Mourning dove	8/25/81	32	1
( <u>Zenaida macroura</u> )	8/26/81	28	0
	8/27/81	22	3

\* T32S, R12W, Sec. 12, S 1/2

\*\* T32S, R12W, Sec. 4, NW/SE

TABLE A-2 (cont.)

Species	Date	Number Seen	Number Heard
Poor-will	8/25/81	1	0
( <u>Phalaenoptilus</u>	8/26/81	0	0
<u>nuttallii</u> )	8/27/81	0	0
Common nighthawk	8/25/81	1	0
( <u>Chordeiles minor</u> )	8/26/81	0	0
	8/27/81	0	0
Horned lark	8/25/81	0	2
( <u>Eremophila alpestris</u> )	8/26/81	0	0
	8/27/81	0	0
Scrub jay	8/25/81	0	0
( <u>Aphelocoma</u>	8/26/81	0	0
<u>coerulescens</u> )	8/27/81	0	1
Plain titmouse	8/25/81	3	0
( <u>Parus inornatus</u> )	8/26/81	2	0
	8/27/81	5	1
Common bushtit	8/25/81	3	4
( <u>Psaltriparus minimus</u> )	8/26/81	5	3
	8/27/81	5	6
Bewick's wren	8/25/81	1	0
( <u>Thryomanes bewickii</u> )	8/26/81	1	0
	8/27/81	0	0
Black-throated sparrow	8/25/81	1	0
( <u>Amphispiza bilineata</u> )	8/26/81	0	1
	8/27/81	0	0
Sage sparrow	8/25/81	0	0
( <u>Amphispiza belli</u> )	8/26/81	3	0
	8/27/81	13	2
Brewer's sparrow	8/25/81	3	1
( <u>Spizella breweri</u> )	8/26/81	1	0
	8/27/81	1	2

TABLE A-3

BIRD SPECIES OBSERVED ON THE  
MILFORD ALTERNATE OBTS BIRD TRANSECTS 1 AND 2  
SEPTEMBER 1-3, 1981

Species	Date	Number Seen	Number Heard
Transect 1*			
Horned lark	9/1/81	3	0
( <u>Eremophila alpestris</u> )	9/2/81	7	1
	9/3/81	0	0
Common raven	9/1/81	0	0
( <u>Corvus corax</u> )	9/2/81	2	0
	9/3/81	0	0
Sage sparrow	9/1/81	6	2
( <u>Amphispiza belli</u> )	9/2/81	8	1
	9/3/81	11	5
Brewer's sparrow	9/1/81	1	1
( <u>Spizella breweri</u> )	9/2/81	0	2
	9/3/81	0	0
Transect 2**			
Common raven	9/1/81	0	0
( <u>Corvus corax</u> )	9/2/81	0	0
	9/3/81	1	0
Western meadowlark	9/1/81	1	2
( <u>Sturnella neglecta</u> )	9/2/81	0	0
	9/3/81	0	0
Sage sparrow	9/1/81	9	3
( <u>Amphispiza belli</u> )	9/2/81	9	7
	9/3/81	10	7
Brewer's sparrow	9/1/81	5	3
( <u>Spizella breweri</u> )	9/2/81	0	0
	9/3/81	0	0

\* T30S, R12W, Sec. 34, NW to SE

\*\* T31S, R12W, Sec. 1, SE/SW

TABLE A-4

BIRD SPECIES OBSERVED ON THE  
BERYL PREFERRED OBTS BIRD TRANSECTS 1 AND 2  
AUGUST 19-21, 1981

Species	Date	Number Seen	Number Heard
Transect 1*			
Horned lark	8/19/81	3	2
( <u>Eremophila alpestris</u> )	8/20/81	8	0
	8/21/81	5	1
Western meadowlark	8/19/81	0	0
( <u>Sturnella neglecta</u> )	8/20/81	1	0
	8/21/81	0	0
Vesper sparrow	8/19/81	0	0
( <u>Pooecetes gramineus</u> )	8/20/81	0	0
	8/21/81	1	0
Brewer's sparrow	8/19/81	4	1
( <u>Spizella breweri</u> )	8/20/81	6	0
	8/21/81	9	4
Transect 2**			
Cooper's hawk	8/19/81	0	0
( <u>Accipiter cooperii</u> )	8/20/81	1	0
	8/21/81	0	0
Great horned owl	8/19/81	1	0
( <u>Bubo virginianus</u> )	8/20/81	0	0
	8/21/81	0	0
Gray flycatcher	8/19/81	1	0
( <u>Empidonax wrightii</u> )	8/20/81	0	0
	8/21/81	0	0
Pinyon jay	8/19/81	42	3
( <u>Gymnorhinus</u>	8/20/81	5	5
<u>cyanocephalus</u> )	8/21/81	1	3

\* T31S, R18W, Sec. 33, SE/SE

\*\* T31S, R18W, Sec. 21, NE/NE

TABLE A-4 (cont.)

Species	Date	Number Seen	Number Heard
Mountain chickadee	8/19/81	0	0
( <u>Parus gambeli</u> )	8/20/81	0	1
	8/21/81	2	0
Plain titmouse	8/19/81	0	0
( <u>Parus inornatus</u> )	8/20/81	0	0
	8/21/81	1	2
Common bushtit	8/19/81	2	0
( <u>Psaltiriparus minimus</u> )	8/20/81	0	1
	8/21/81	0	5
Bewick's wren	8/19/81	0	0
( <u>Thryomanes bewickii</u> )	8/20/81	1	0
	8/21/81	0	0
Blue-gray gnatcatcher	8/19/81	0	0
( <u>Polioptila caerulea</u> )	8/20/81	1	0
	8/21/81	0	0
Vesper sparrow	8/19/81	1	0
( <u>Pooecetes gramineus</u> )	8/20/81	0	0
	8/21/81	0	0

APPENDIX B

SMALL MAMMAL  
TRAPPING  
RESULTS



TABLE B-1  
RESULTS OF SMALL MAMMAL TRAPPING\*  
COYOTE OBTS  
AUGUST 8-10, 1981

Species	Dates Trapped	Number Female	Number Male	Daily Total	Species Total	Remarks
White-tailed antelope	8/8/81	0	0	0	1	
ground squirrel	8/9/81	0	0	0		
<u>Amnospermophilus leucurus</u>	8/10/81	1	0	1		
Merriam kangaroo rat	8/8/81	1	4	5	17	1 escaped
<u>Dipodomys merriami</u>	8/9/81	3	3	6		before
	8/10/81	2	3	6		sexing
Unidentified species	8/8/81	0	0	0	1	Escaped
(Desert kangaroo rat	8/9/81	0	0	0		
<u>Dipodomys deserti?</u> )	8/10/81	0	0	1		
Traps sprung without animals	8/8/81			2		Kit fox scat on 1 trap
	8/9/81			4		Kit fox scat on 2 traps
	8/10/81			3		
Total number of species taken	8/8/81			1	3(?)	
	8/9/81			1		
	8/10/81			3(?)		

\* 74 sherman live traps set per day.

TABLE B-2

RESULTS OF SMALL MAMMAL TRAPPING\*  
MILFORD PREFERRED OBTS  
AUGUST 25-27, 1981

Species	Dates Trapped	Number Female	Number Male	Daily Total	Species Total	Remarks
White-tailed antelope	8/25/81	0	0	0	2	
ground squirrel	8/26/81	1	0	1		
<u>Ammospermophilus leucurus</u>	8/27/81	0	1	1		
Little pocket mouse	8/25/81	1	0	1	7	
<u>Perognathus longimembris</u>	8/26/81	2	0	2		
	8/27/81	2	2	4		
Longtail pocket mouse	8/25/81	0	0	0	3	
<u>Perognathus formosus</u>	8/26/81	1	0	1		
	8/27/81	1	1	2		
Deer mouse	8/25/81	1	1	2	5	
<u>Peromyscus maniculatus</u>	8/26/81	1	1	2		
	8/27/81	1	0	1		
Northern grasshopper mouse	8/25/81	0	0	0	1	
	8/26/81	0	0	0		
<u>Onychomys leucogaster</u>	8/27/81	0	1	1		
Traps sprung	8/25/81			0		
without animals	8/26/81			0		
	8/27/81			2		
Total number of species taken	8/25/81			2	5	
	8/26/81			4		
	8/27/81			5		

\* 74 sherman live traps set per day.

TABLE B-3  
RESULTS OF SMALL MAMMAL TRAPPING\*  
MILFORD ALTERNATE OBTS  
SEPTEMBER 1-3, 1981

Species	Dates Trapped	Number Female	Number Male	Daily Total	Species Total	Remarks
White-tailed antelope	9/1/81	0	0	0	2	
ground squirrel	9/2/81	0	0	0		
<u>Ammospermophilus leucurus</u>	9/3/81	2	0	2		
Little pocket mouse	9/1/81	0	1	1	1	
<u>Perognathus longimembris</u>	9/2/81	0	0	0		
	9/3/81	0	0	0		
Great Basin pocket mouse	9/1/81	4	5	9	36	
<u>Perognathus parvus</u>	9/2/81	6	7	13		
	9/3/81	9	5	14		
Dark kangaroo mouse	9/1/81	4	0	4	9	
<u>Microdipodops megacephalus</u>	9/2/81	1	1	2		
	9/3/81	3	0	3		
Ord kangaroo rat	9/1/81	1	0	1	3	
<u>Dipodomys ordi</u>	9/2/81	0	1	1		
	9/3/81	0	1	1		
Western harvest mouse	9/1/81	1	4	6	20	1 escaped
<u>Reithrodontomys megalotis</u>	9/2/81	1	4	5		before
	9/3/81	3	6	9		sexing
Deer mouse	9/1/81	6	10	16	51	
<u>Peromyscus maniculatus</u>	9/2/81	5	10	15		
	9/3/81	8	12	20		
Northern grasshopper	9/1/81	0	0	0	1	
mouse	9/2/81	0	0	0		
<u>Onychomys leucogaster</u>	9/3/81	1	0	1		
Desert woodrat	9/1/81	1	1	2	2	
<u>Neotoma lepida</u>	9/2/81	0	0	0		
	9/3/81	0	0	0		

\* 74 sherman live traps set per day.

TABLE B-3 (cont.)

Species	Dates Trapped	Number Female	Number Male	Daily Total	Species Total	Remarks
Traps sprung	9/1/81			2	12	
without animals	9/2/81			3		
	9/3/81			7		
Total number of	9/1/81			7	9	
species taken	9/2/81			5		
	9/3/81			7		

TABLE B-4

RESULTS OF SMALL MAMMAL TRAPPING\*  
 BERYL PREFERRED OBTS  
 AUGUST 19-21 AND SEPTEMBER 23-25, 1981

Species	Dates Trapped	Number Female	Number Male	Daily Total	Species Total	Remarks
Cliff chipmunk	8/19/81	0	0	0	2	
<u>Eutamias dorsalis</u>	8/20/81	0	0	0		
	8/21/81	0	0	0		
	9/24/81	0	1	1		
	9/25/81	0	1	1		
Great Basin pocket mouse	8/19/81	1	0	1	9	
	8/20/81	2	0	2		
<u>Perognathus parvus</u>	8/21/81	2	3	5		
	9/23/81	0	0	0		
	9/24/81	1	0	1		
	9/25/81	0	0	0		
Deer mouse	8/19/81	9	13	24	107	9 escaped before sexing 2 with tumors 1 with large wound
<u>Peromyscus maniculatus</u>	8/20/81	8	12	21		
	8/21/81	13	16	35		
	9/23/81	3	4	7		
	9/24/81	1	7	8		
	9/25/81	6	6	12		
Pinyon mouse	8/19/81	0	0	0	7	
<u>Peromyscus truei</u>	8/20/81	0	0	0		
	8/21/81	0	0	0		
	9/23/81	0	0	0		
	9/24/81	2	2	4		
	9/25/81	1	2	3		
Sagebrush vole	8/19/81	1	0	1	1	
<u>Lagurus curtatus</u>	8/20/81	0	0	0		
	8/21/81	0	0	0		
	9/23/81	0	0	0		
	9/24/81	0	0	0		
	9/25/81	0	0	0		

\* 74 sherman live traps set per day.

TABLE B-4 (cont.)

Species	Dates Trapped	Number Female	Number Male	Daily Total	Species Total	Remarks
Traps sprung without animals	8/19/81			2		
	8/20/81			0		
	8/21/81			1		
	9/23/81			2		
Total number of species taken	8/19/81			3	5	
	8/20/81			2		
	8/21/81			2		
	9/23/81			1		
	9/24/81			4		
	9/25/81			3		

APPENDIX C

RELEVE QUADRAT  
DATA FOR  
NEVADA

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE COYOTE OBTS AND CONNECTING ROAD  
 -- MOJAVE YUCCA ASSOCIATION --

[illegible]



**TABLE C-1a (Cont.)**

Species	Releve Number											Avg. Frequency					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Cover(%)	(%)
Grasses																	
Aristida purpurea								1								0.1	7
Blepharidachne kingii				+	+	+	+	+	+							+	27
Hilaria jamesii			+													+	13
Hilaria rigida									1							0.1	7
TOTAL	0	0	+	+	0	+	+	+	1	1	0	0	0	0	0	0.1	---
TOTAL VEGETATIVE COVER	19	11	18	19	15	18	16	15	21	23	13	20	16	19	12	17.0	---
BARE GROUND																	
GRAVEL AND ROCK	9	7	9	3	10	6	10	8	5	35	15	10	8	29	10	11.6	---
LITTER	70	79	70	77	73	73	72	74	70	41	70	66	75	50	74	68.9	---
TOTAL	2	3	3	1	2	3	2	3	4	1	2	4	1	2	4	2.5	---
	81	89	82	81	85	82	84	85	79	77	87	80	84	81	88	83.0	---

TABLE C-1b

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE COYOTE OBTS  
 -- SHADSCALE ASSOCIATION --

Species	Releve Number		Avg. Cover(%)	Frequency (%)
	1	2		
<u>Shrubs and Succulents</u>				
Ambrosia dumosa	4	2	3.0	100
Atriplex confertifolia	2	5	3.5	100
Krameria sp.	2		1.0	50
Larrea tridentata		1	0.5	50
TOTAL	8	8	8.0	---
<u>Grasses</u>				
Bromus rubens		1	0.5	50
TOTAL	0	1	0.5	---
TOTAL VEGETATIVE COVER	8	9	8.5	---
<u>BARE GROUND</u>				
GRAVEL AND ROCK	3	81	42.0	---
LITTER	88	4	46.0	---
TOTAL	1	6	3.5	---
	92	91	91.5	---

TABLE C-1c

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE COYOTE OBITS  
 — HOLLY-LEAFED SALTBUSH ASSOCIATION —

Species	Releve Number		Avg. Cover(%)	Frequency (%)
	1	2		
<u>Shrubs and Succulents</u>				
Ambrosia dumosa	2	1	1.5	100
Atriplex hymenelytra	4	2	3.0	100
Ephedra nevadensis	6		3.0	50
Ephedra sp.		1	0.5	50
Krameria sp.	2		1.0	50
Psoralea nuttallii		+	0.0	50
TOTAL	14	4	9.0	---
<u>Forbs</u>				
Eriogonum inflatum	1		0.5	50
TOTAL	1	0	0.5	---
<u>Grasses</u>				
Bromus rubens	3		1.5	50
TOTAL	3	0	1.5	---
TOTAL VEGETATIVE COVER	18	4	11.0	---
<u>BARE GROUND</u>				
GRAVEL AND ROCK	7	3	5.0	---
LITTER	72	92	82.0	---
TOTAL	3	1	2.0	---
TOTAL	82	96	89.0	---

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE COYOTE OBITS  
 -- CREOSOTE BUSH / WHITE BURSAGE ASSOCIATION --

[illegible]

TABLE C-1d (Cont.)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<u>Grasses</u>																		
Blepharidachne kingii						+												
Bromus rubens			+	+		+		+		+	1		1	+			+	+
Hilaria rigida																		
Oryzopsis hymenoides		+																
Stipa sp.			+	+	+	0	+	0	+	+	1	0	1	+	1	0	+	+
TOTAL	0	+	+	+	0	+	0	+	0	+	1	0	1	+	1	0	+	+
TOTAL VEGETATIVE COVER	15	14	13	18	15	16	10	14	25	19	14	19	10	13	16	18	20	24
<u>BARE GROUND</u>																		
GRAVEL AND ROCK	17	9	5	4	4	5	5	5	8	8	3	3	52	8	7	3	20	10
LITTER	65	76	81	77	81	75	84	78	63	69	82	77	35	78	76	78	55	63
TOTAL	3	1	1	1	+	2	1	2	3	3	1	1	3	1	1	1	3	2
	85	86	87	82	85	82	90	85	74	80	86	81	90	87	84	82	78	75

TABLE C-1d (Cont.)

[illegible]

TABLE C-1d (Cont.)

Species	19	20	21	22	23	24	25	26	27	28	Releve Number														
											29	30	31	32	33										
<u>Grasses</u>																									
Blepharidachne kingii	2																								
Bromus rubens																									
Hilaria rigida																									
Oryzopsis hymenoides																									
Stipa sp.																									
TOTAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL VEGETATIVE COVER	22	16	17	11	9	16	17	15	19	19	17	13	11	15	17										
BARE GROUND	60	3	5	4	5	7	5	14	5	5	8	10	5	4	3										
GRAVEL AND ROCK	15	79	77	84	85	75	77	70	75	74	73	76	82	80	79										
LITTER	3	2	1	1	1	2	1	1	1	2	2	1	2	1	1										
TOTAL	78	84	83	89	91	84	83	85	81	81	83	87	89	85	83										

TABLE C-1d (Cont.)

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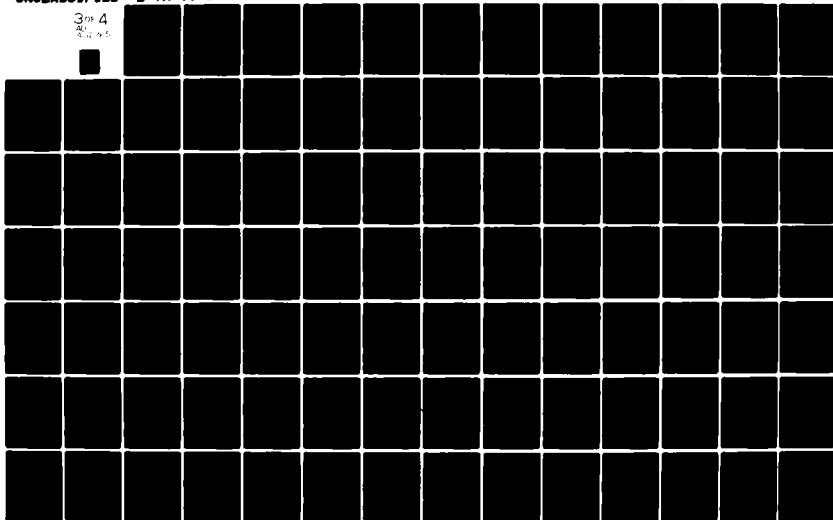
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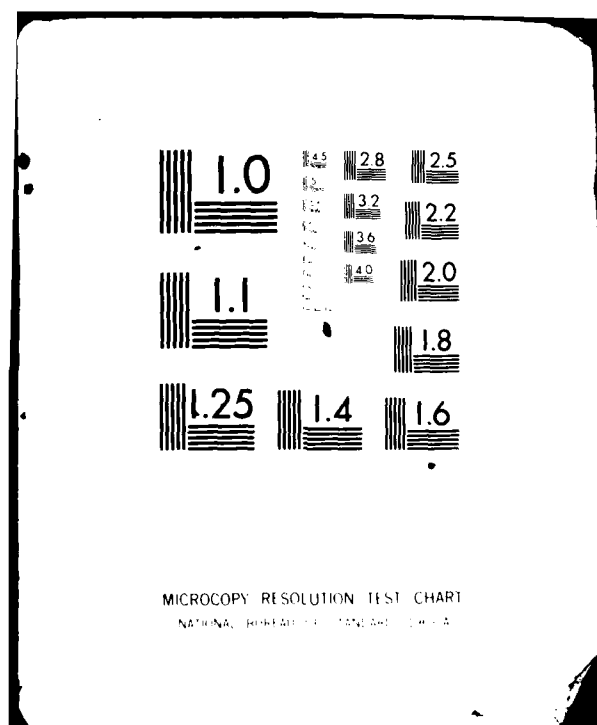


TABLE C-1d (Cont.)

Species	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
<u>Grasses</u>																
Blepharidachne kingii					1								+	+		+
Bromus rubens																
Hilaria rigida																
Oryzopsis hymenoides																
Stipa sp.																
TOTAL	0	0	0	0	1	0	0	0	0	0	0	0	+	+	0	+
TOTAL VEGETATIVE COVER	19	19	13	15	13	12	12	15	20	17	20	12	17	14	18	15
BARE GROUND	6	5	4	6	57	8	8	3	8	3	8	5	55	64	4	5
GRAVEL AND ROCK	73	71	82	78	38	79	79	81	69	79	71	81	25	10	76	79
LITTER	2	5	1	1	3	1	1	1	3	1	1	2	3	2	2	1
TOTAL	81	81	87	85	98	88	88	85	80	83	80	88	83	76	82	85

TABLE C-1d (Cont.)

Species	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
<b>Shrubs and Succulents</b>																
<i>Acamptopappus shockleyi</i>																
<i>Ambrosia dumosa</i>	16	18	13	7	9	4	3	14	10	11	11	18	8	7	10	10
<i>Ephedra nevadensis</i>		2	2	4		1	+		1			1	2	2		
<i>Ephedra</i> sp.																
<i>Grayia spinosa</i>																
<i>Krameria</i> sp.				2				1							1	
<i>Larrea tridentata</i>	5	6	4	5	3	3	10	6	1	5	5	6		3	3	5
<i>Lepidium fremontii</i>																
<i>Menodora spinescens</i>		1							+							
<i>Opuntia basilaris</i>																
<i>Opuntia echinocarpa</i>		+								+						
<i>Opuntia erinacea</i>																
<i>Opuntia fremontii</i>																
<i>Psoralea argophylla</i>						2		+				3				
<i>Psoralea</i> sp.																
<i>Stephanomeria pauciflora</i>																
TOTAL	21	27	19	18	12	10	13	21	12	16	16	25	13	12	14	15
<b>Forbs</b>																
<i>Baileya multiradiata</i>																
<i>Chorizanthe rigida</i>																
<i>Descurainia</i> sp.	+								+		+	+				
<i>Eriogonum inflatum</i>																
<i>Sisymbrium</i> sp.																
<i>Sphaeralcea ambigua</i>		+		1									1			
<i>Sphaeralcea</i> sp.	+	+		1	0	0	0	+	+	+	+	+	1	0	0	0
TOTAL	+	+	0	1	0	0	0	+	+	+	+	+	1	0	0	0

TABLE C-1d (Cont.)

Species	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
	Releve Number															
<u>Grasses</u>																
Blepharidachne kingii											+	+				
Bromus rubens			+								+					+
Hilaria rigida			3													
Oryzopsis hymenoides																
Stipa sp.																
TOTAL	0	0	3	0	0	0	0	0	0	0	+	+	0	0	+	0
TOTAL VEGETATIVE COVER	21	27	22	19	12	10	13	21	12	16	16	25	14	12	14	15
BARE GROUND	25	10	42	10	12	3	4	2	5	3	10	44	75	2	8	45
GRAVEL AND ROCK	48	59	30	69	75	86	82	70	80	80	70	28	10	84	76	35
LITTER	5	3	6	2	1	1	1	6	2	1	2	2	1	2	2	5
TOTAL	78	72	78	81	88	90	87	78	87	84	82	74	86	88	86	85

**TABLE C-1d (Cont.)**

[illegible]

TABLE C-1d (Cont.)

Species	66	67	68	69	70	71	72	73	74	75	76	Avg. Cover(%)	Frequency (%)
<u>Grasses</u>													
<i>Alepharidactne kingii</i>						+			+		1	0.0	3.9
<i>Bromus rubens</i>	+		+									0.1	30.3
<i>Hilaria rigida</i>	1											0.1	2.6
<i>Oryzopsis hymenoides</i>			2									0.0	2.6
<i>Stipa</i> sp.												0.0	1.3
TOTAL	1	0	2	0	0	+	0	0	+	0	1	0.1	---
TOTAL VEGETATIVE COVER	15	11	11	21	12	12	15	4	11	16	20	15.7	---
<u>BARE GROUND</u>													
GRAVEL AND ROCK	53	10	50	49	6	5	7	4	21	34	8	14.7	---
LITTER	30	75	34	26	80	80	75	92	65	48	70	67.4	---
TOTAL	86	89	89	78	88	88	85	96	88	84	80	84.1	---

TABLE C-1e

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE COYOTE OBIS  
 --- WASH ASSOCIATION ---

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Shrubs and Succulents																					
Acacia greggii					3	6	15	5	9	15	25	5	6				8	22		25	
Acamptopappus shockleyi							2				12	3				12					
Ambrosia dumosa	1	2			5	8	1	+	5	2	+	4	7	8	1	2			4		
Ambrosia eriocentra	2			+																1	
Atriplex canescens																					
Atriplex confertifolia																					
Atriplex sp.																					
Brickellia sp.							2														
Chrysothamnus viscidiflorus															+						
Chrysothamnus sp.	12			18																	
Encelia frutescens					4			2			+										
Encelia sp.																					
Ephedra nevadensis							2			2									3		
Ephedra sp.						7			4												
Eriogonum fasciculatum										2											
Ferocactus acanthodes															2						
Grayia spinosa			10						+												
Gutierrezia microcephala														3				+			
Hymenoclea salsola	3	12	9		7	4	2				2		2	2		1	3			5	
Krameria sp.			+			+	2		5			3	5					3			
Larrea tridentata	1	1	4	2											4	2	8				
Lycium sp.													4								
Menodora spinescens									5												
Opuntia echinocarpa								+					+		1						
Prunus fasciculata	2																1	4			
Psilostrophe cooperii																					
Psoralea fremontii			3		2						3	12									
Salazaria mexicana					6	4	3	8				6		3		1	1	1		2	
Salvia dorrii												4				2					
Stephanomeria pauciflora							1		+												
Thamnosma montana										1	3				2						
Yucca schidigera																					
TOTAL	18	16	28	20	27	29	30	20	28	22	22	45	19	26	17	19	23	30	8	32	



TABLE C-1e (Cont.)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<u>Forbs</u>																				
Baileya multiradiata									+					1						
Descurainia sp.	+					+														
Dyssodia cooperi																		+		
Dyssodia sp.							1			+			2							
Eriogonum inflatum						+							1	1						
Eriogonum sp.																				
Plantago sp.															+					
Porophyllum gracile																			5	
Sphaeralcea ambigua																			+	
Sphaeralcea sp.											2			+						
TOTAL	+	0	0	0	0	+	1	0	+	+	2	0	0	4	1	0	0	+	5	0
<u>Grasses</u>																				
Aristida purpurea														+						
Blepharidachne kingii												+								
Bromus rubens	4	+	5		3	1		4			+	3								
Bromus tectorum																			3	
Hilaria rigida	4	+	5	0	3	1	0	0	4	0	+	3	+	+	+	0	0	0	3	0
TOTAL	22	16	33	20	30	30	31	20	32	22	24	48	19	30	18	19	23	30	16	32
TOTAL VEGETATIVE COVER																				
BARE GROUND	6	15	5	35	35	25	32	39	26	35	9	27	25	34	3	25	15	60	64	15
GRAVEL AND ROCK	69	66	60	41	31	41	32	35	38	38	65	15	50	32	78	51	60	8	10	52
LITTER	3	3	2	4	4	3	5	6	3	5	2	10	6	4	1	5	2	1	10	1
TOTAL	78	84	67	80	70	69	69	80	67	78	76	52	81	70	82	81	77	69	84	68

TABLE C-1e (Cont.)

Species	21	22	23	24	25	26	27	28	29	30	31	Avg. Cover (%)	Frequency (%)
<b>Shrubs and Succulents</b>													
<i>Acacia greggii</i>	20	3					3	3				5.6	51.6
<i>Acaemtopappus shockleyi</i>							1					1.0	16.1
<i>Ambrosia dumosa</i>	3	3		5	5					2	14	2.6	67.7
<i>Ambrosia eriocentra</i>					10							0.4	10.0
<i>Atriplex canescens</i>			1							5		0.2	10.0
<i>Atriplex confertifolia</i>				3								0.1	3.2
<i>Atriplex sp.</i>					15							0.5	3.2
<i>Brickellia sp.</i>				5								0.2	6.4
<i>Chrysothamnus viscidiflorus</i>							2					0.1	6.4
<i>Chrysothamnus sp.</i>					4							1.1	10.0
<i>Encelia frutescens</i>												0.1	3.2
<i>Encelia sp.</i>												0.1	6.4
<i>Ephedra nevadensis</i>							2				2	0.4	16.1
<i>Ephedra sp.</i>												0.4	6.4
<i>Eriogonum fasciculatum</i>	2						3					0.2	10.0
<i>Ferocactus acanthodes</i>												0.1	3.2
<i>Grayia spinosa</i>												0.3	6.4
<i>Gutierrezia microcephala</i>												0.1	6.4
<i>Hymenoclea salsola</i>	2	+	5	1			3			2	3	2.1	58.1
<i>Krameria sp.</i>												0.6	22.6
<i>Larrea tridentata</i>			4		1	5	6	2		4	3	1.5	45.2
<i>Lycium sp.</i>												0.1	3.2
<i>Menodora spinescens</i>												0.2	3.2
<i>Opuntia echinocarpa</i>								+				0.0	12.9
<i>Prunus fasciculata</i>			8									0.5	12.9
<i>Psilostrophe cooperii</i>												0.2	3.2
<i>Psoralea fremontii</i>									2			0.7	16.1
<i>Salazaria mexicana</i>	7		14									1.8	38.7
<i>Salvia dorrii</i>												0.2	6.4
<i>Stephanomeria pauciflora</i>							1					0.1	10.0
<i>Thamnosma montana</i>									1			0.2	12.9
<i>Yucca schidigera</i>									7				
TOTAL	10	27	30	13	7	34	11	17	13	13	22	21.8	

TABLE C-1e (Cont.)

Species	21	22	23	24	25	26	27	28	29	30	31	Avg. Cover(%)	Frequency (%)
<u>Forbs</u>													
Baileya multiradiata												0.0	6.4
Descurainia sp.												+	6.4
Dyssodia cooperi												+	3.2
Dyssodia sp.							+					0.1	12.9
Eriogonum inflatum							+					0.1	22.6
Eriogonum sp.										1		0.0	3.2
Plantago sp.												+	3.2
Porophyllum gracile							1					0.2	6.4
Sphaeralcea ambigua												+	3.2
Sphaeralcea sp.	+	0	+	0	0	0	1	+	+	1	0	0.1	12.9
TOTAL	+	0	+	0	0	0	1	+	+	1	0	0.5	---
<u>Grasses</u>													
Aristida purpurea							4					0.1	6.4
Blepharidachne kingii							1	+				0.1	16.1
Bromus rubens	+	+	4	5	1	+					2	1.0	48.4
Bromus tectorum												0.1	3.2
Hilaria rigida	2	+	4	5	1	+	0	5	+	0	2	0.1	---
TOTAL	2	+	4	5	1	+	0	5	+	0	2	1.4	---
TOTAL VEGETATIVE COVER	12	27	34	18	8	34	11	23	13	14	24	23.6	---
<u>BARE GROUND</u>													
GRAVEL AND ROCK	10	22	47	2	85	57	15	30	8	15	31	27.5	---
LITTER	74	47	12	73	5	1	71	39	76	67	40	44.4	---
TOTAL	4	4	6	7	2	8	3	8	2	4	5	4.3	---
TOTAL	88	73	65	82	92	66	89	77	86	86	76	76.2	---

TABLE C-2a

# PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN

MILES 1-3

— JOSHUA TREE / SPINY HOPSAGE ASSOCIATION —

Species	(Road Mile) (Releve #)										Mile 1										Mile 2										Mile 3					Avg. Cover(%)	Frequency (%)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30							
<u>Trees</u>																																					
<i>Yucca brevifolia</i>	0	0	0	0	5	16	4	16	8	7	25	26	14	6	11																		9.2	73.3			
TOTAL					5	16	4	16	8	7	25	26	14	6	11																	9.2	73.3				
<u>Shrubs and Succulents</u>																																					
<i>Artemisia spinescens</i>						+																										+	6.7				
<i>Artemisia tridentata</i>														12	6																	1.2	13.3				
<i>Atriplex canescens</i>			2																													0.1	6.7				
<i>Ceratoides lanata</i>	1	1	1	1			+				2																					0.5	46.7				
<i>Chrysothamnus Greenei</i>					2		2		5	4			2																			1.5	46.7				
<i>Chrysothamnus viscidiflorus</i>	2							5			4	6																				1.3	33.3				
<i>Ephedra nevadensis</i>		+			4	3		2	1	1	5		3	4	1																	1.6	66.7				
<i>Grayia spinosa</i>	15	14	6	4	4	4	6		2	6	8	9	1																			5.3	80.0				
<i>Opuntia echinocarpa</i>				+	+	+	+	+	+	+																						+	40.0				
<i>Opuntia erinacea</i>				+				1	+																							0.1	20.0				
<i>Tetradymia axillaris</i>				2	2		1	3	1		1																					0.1	20.0				
<i>Tetradymia glabrata</i>	18	9	21	8	12	7	9	11	10	11	15	20	6	19	15																	1.1	46.7				
TOTAL																																12.7	100.0				
<u>Forbs</u>																																					
<i>Astragalus lentiginosus</i>	+	+		+	+		3		+				1		+																	0.3	53.3				
<i>Astragalus</i> sp.						+		+			1	1		+																		0.1	33.3				
<i>Baileya</i> sp.				+																												+	6.7				
<i>Leucelene ericoides</i>								+					+																			+	6.7				
<i>Sisymbrium altissimum</i>				+	+	+	+	+	+																							+	13.3				
<i>Sphaeralcea ambigua</i>	+	+	1	+	+	+	+	+	+																							0.1	53.3				
<i>Sphaeralcea</i> sp.	+	+	1	+	+	+	3	+	+	0	1	1	1	+	+																+	6.7					
TOTAL																																0.5	100.0				

TABLE C-2a (Cont.)

Species	(Road Mile)		Mile 1					Mile 2					Mile 3					Avg. Frequency	
	(Releve #)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Cover(%)	(%)
<u>Grasses</u>																			
Aristida purpurea	1		1				+			+		1	2	+	+			0.3	53.3
Hilaria jamesii	2	2	5	1	7	15	5	10	4	4	3	14	8		2	3	+	5.4	100.0
Muhlenbergia porteri												+						+	6.7
Oryzopsis hymenoides		+			+	1			+	+	+				+	+	+	+	53.3
Sitanion hystrix		+			1		1		2	2	4				1		+	0.6	46.7
Sitanion sp.				2								+						0.1	13.3
TOTAL	3	3	6	3	8	16	6	10	6	8	16	8	8	8	3	3	+	6.6	100.0
TOTAL VEGETATIVE COVER	22	13	28	14	27	40	23	39	26	27	57	55	55	55	30	29	28	27.2	---
<u>BARE GROUND</u>																			
GRAVEL AND ROCK	71	85	62	82	57	49	69	52	69	67	16	16	17	17	65	61	70	59.5	---
LITTER	3	0	4	0	10	4	2	6	2	1	20	18	18	18	1	4	0	5.0	---
TOTAL	4	2	6	4	6	6	6	3	3	5	7	10	10	10	4	6	2	4.9	---
TOTAL	78	87	72	86	73	59	77	61	74	73	43	43	45	45	70	71	72	69.4	---

TABLE C-2b

## PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN

MILES 4-6

— JOSHUA TREE / SPINY HOPSAGE ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 4 16 17	Mile 5 18 19 20 21	Mile 6 22 23 24	Avg. Cover(%)	Frequency (%)
<u>Trees</u>						
<i>Yucca brevifolia</i>	12 5	5 5	4 2 4	3 6	4.6	88.9
TOTAL	12 5	5 5	4 2 4	3 0 6	4.6	88.9
<u>Shrubs and Succulents</u>						
<i>Ambrosia eriocentra</i>	8		6 5 1	7 2	0.1	11.1
<i>Artemisia tridentata</i>		3			3.1	55.6
<i>Atriplex canescens</i>					0.3	11.1
<i>Ceratoides lanata</i>	1				+	11.1
<i>Chrysothamnus viscidiflorus</i>	4 5	5 4 4 3	2 4 3	3 8	3.8	100.0
<i>Ephedra nevadensis</i>	2 1	2 3 2 3	3 4 4	2 7	2.7	100.0
<i>Grayia spinosa</i>	3	3 2 3 3	6 5	2 8	2.8	77.8
<i>Gutierrezia microcephala</i>	1	1 1 1 2	1 1	0 8	0.8	77.8
<i>Opuntia basilaris</i>		+			+	11.1
<i>Opuntia echinocarpa</i>			2		0.2	22.2
<i>Opuntia erinacea</i>			+		+	11.1
<i>Tetradymia axillaris</i>	1	2		1	0.4	33.3
<i>Tetradymia glabrata</i>	2	2		2 1 1	0.7	44.4
<i>Yucca baccata</i>	1 3	4	4	1 5 5	2.1	66.7
TOTAL	25 18	14 16 18 14	15 24 19	18.1		100.0
<u>Forbs</u>						
<i>Astragalus lentiginos</i>	+	1 2	+	1	0.4	77.8
<i>Astragalus sp.</i>	1			+	0.1	11.1
<i>Caulanthus pilosus</i>	+				+	11.1
<i>Caulanthus sp.</i>		2			0.2	11.1
<i>Eriogonum cernuum</i>	1	+			0.1	22.2
<i>Machaeranthera canescens</i>	2				0.2	11.1
<i>Penstemon palmeri</i>		+			+	11.1
<i>Plantago sp.</i>		+			+	11.1
<i>Sphaeralcea ambigua</i>	+	+			+	11.1
TOTAL	1 3	3 4	+	1	1.3	88.9

TABLE C-2b (Cont.)

Species	(Road Mile)		Mile 4		Mile 5			Mile 6			Avg. Cover(%)	Frequency (%)	
	(Releve #)		16	17	18	19	20	21	22	23			24
Grasses													
Aristida purpurea					1						2	0.3	22.2
Blepharidachne kingii*			1								+	0.1	22.2
Hilaria jamesii	3	3			2	4	2	1	1	1	2	2.1	100.0
Oryzopsis hymenoides		1			+	1	1					0.3	44.4
Sitanion sp.						1		+	1			0.2	33.3
Sporobolus sp.	+							2				0.2	33.3
TOTAL	3	5			3	6	3	3	2	1	4	3.3	100.0
TOTAL VEGETATIVE COVER													
	31	31			24	30	23	21	22	26	29	26.3	---
BARE GROUND													
	54	35			39	40	12	9	10	20	21	26.7	---
GRAVEL AND ROCK													
	8	5			7	10	20	20	45	40	35	21.1	---
LITTER													
	7	29			30	20	45	50	23	13	15	25.8	---
TOTAL	69	69			76	70	77	79	78	73	71	73.6	---

\* May possibly be *Erioneuron puchellum*; the two species were not distinguishable.

TABLE C-2c

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 7-9  
-- JOSHUA TREE / SPINY HOPSAGE ASSOCIATION --

Species	(Road Mile) (Releve #)	25	26	27	28	29	30	31	32	33	34	35	36	Avg. Cover(%)	Frequency (%)
<b>Trees</b>															
<i>Yucca brevifolia</i>		3	0	0	6	3	0	0	1	3	3	3	2	1.8	58.3
<b>TOTAL</b>		3	0	0	6	3	0	0	1	3	0	3	2	1.8	58.3
<b>Shrubs and Succulents</b>															
<i>Artemisia spinescens</i>		1				2	1	1	4	3				1.0	50.0
<i>Atriplex canescens</i>						+		+	1		2	2		0.3	16.7
<i>Ceratoides lanata</i>					1									0.2	33.3
<i>Chrysothamnus viscidiflorus</i>			2		2		2		1					0.6	33.3
<i>Ephedra nevadensis</i>		2	3	2	5	1	3	2	1	1		4	1	2.1	91.7
<i>Grayia spinosa</i>		3	4	6		4	2	8	4	4	7	3	5	4.2	91.7
<i>Gutierrezia microcephala</i>					1									0.1	8.3
<i>Opuntia basilaris</i>					+									+	8.3
<i>Opuntia echinocarpa</i>			1		1				1					0.3	25.0
<i>Opuntia erinacea</i>						2								0.2	8.3
<i>Tetradymia axillaris</i>		1	1	1	1	2	1					1		0.7	58.3
<i>Tetradymia glabrata</i>		2	1	3		2								0.5	25.0
<i>Yucca baccata</i>		3	2	2	2	2								0.9	41.7
<b>TOTAL</b>		12	14	14	13	13	9	11	12	8	9	10	6	10.9	100.0
<b>Forbs</b>															
<i>Astragalus lentiginosus</i>		1	+	1	+	1	1	+		1				0.4	66.7
<i>Astragalus</i> sp.									1					0.1	8.3
<i>Eriogonum cernuum</i>											1			0.1	8.3
<i>Eriogonum</i> sp.										+		1		0.1	16.7
<i>Sphaeralcea ambigua</i>		1	+	1	+			+		1	1	1	0	+	8.3
<b>TOTAL</b>		1	+	1	+	1	1	+	1	1	1	1	0	0.7	91.7



TABLE C-2c (Cont.)

Species	(Road Mile) (Releve #)	25	26	27	28	Mile 7	29	30	31	32	Mile 8	33	34	35	36	Avg. Cover(%)	Frequency (%)
Grasses																	
Aristida purpurea												1	1		3	0.6	33.3
Blepharidachne kingii*												1	+		+	33.3	66.7
Hilaria jamesii		10	3	20	3		4	5	25	10		4	15	16	12	10.6	100.0
Oryzopsis hymenoides		1	2		1		1	1	2	1			1	1	1	1.0	83.3
Sitanion hystrix		1					1	1								0.3	25.0
Sitanion sp.																0.5	25.0
TOTAL		12	5	20	7		7	7	31	14		6	17	17	16	13.3	100.0
TOTAL VEGETATIVE COVER		28	20	35	26		24	17	43	28		18	27	31	24	26.8	---
BARE GROUND		56	71	17	21		38	55	12	10		67	66	29	25	38.9	---
GRAVEL AND ROCK		12	6	33	38		35	25	30	42		10	5	30	36	25.2	---
LITTER		4	3	15	15		3	3	15	20		5	2	10	15	9.2	---
TOTAL		72	80	65	74		76	83	57	72		82	73	69	76	73.3	---

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 10-12

Species	(Road Mile) (Releve #)	Mile 10					Mile 11					Mile 12					Avg. Cover(%)	Frequency (%)
		37	38	39	40	41	42	43	44	45	46	47	48	49				
<b>Trees</b>																		
<i>Yucca brevifolia</i>				1												0.1	7.7	
<b>TOTAL</b>				1												0.1	7.7	
<b>Shrubs and Succulents</b>																		
<i>Artemisia spinescens</i>	1	2				3	3	1	1	2	3				1	+	76.9	
<i>Ceratoides lanata</i>	+		1	1		1	1			+	+			+	2		69.2	
<i>Chrysothamnus Greenei</i>										1	2						15.4	
<i>Chrysothamnus viscidiflorus</i>			+			2	1							4			30.8	
<i>Chrysothamnus sp.</i>															3		7.7	
<i>Grayia spinosa</i>	5	6	5	8		6	4	10	20	12	7			14	20	15	100.0	
<i>Opuntia echinocarpa</i>		1	1														15.4	
<i>Opuntia erinacea</i>							1			1							15.4	
<i>Tetradymia axillaris</i>											1						7.7	
<i>Tetradymia glabrata</i>		1	+	1													23.1	
<b>TOTAL</b>	6	10	7	10		12	10	11	21	16	13			18	24	17	100.0	
<b>Forbs</b>																		
<i>Astragalus lentiginosus</i>	2	+	1	+		1	1				+				+		61.5	
<i>Caulanthus pilosus</i>													+				7.7	
<i>Dyssodia cooperi</i>											+			+			7.7	
<i>Eriogonum deflexum</i>																	7.7	
<i>Eriogonum sp.</i>																	15.4	
<i>Sphaeralcea ambigua</i>						+					+						69.2	
<b>TOTAL</b>	2	+	1	+		1	1	0	0	0	+			+	0	+	0.4	

TABLE C-2d (Cont.)

Species	(Road Mile)		Mile 10			Mile 11						Mile 12			Avg. Cover(%)	Frequency (%)
	(Releve #)	37	38	39	40	41	42	43	44	45	46	47	48	49		
Grasses																
Aristida purpurea					+		1								0.1	7.7
Blepharidachne kingii*			1	+	+		1					1	+		0.3	53.8
Bromus rubens												+			+	7.7
Bromus tectorum													+		+	7.7
Hilaria jamesii		4	9	15	15	5	5	15	12	10	15	4	4	5	9.1	100.0
Oryzopsis hymenoides				+	1	2	1	3	1	2	3	+			1.0	69.2
Sitanion hystrix	1					2	3			+	+			+	0.5	46.2
Sitanion sp.		5	10	15	16	11	10	18	13	12	18	+	1	5	0.1	23.1
TOTAL															11.0	100.0
TOTAL VEGETATIVE COVER																
	13	20	26	27		24	21	29	34	29	33	27	30	24	25.9	---
BARE GROUND																
	78	60	28	30		63	60	23	26	16	23	26	30	53	39.7	---
GRAVEL AND ROCK																
	5	15	10	35		10	15	40	35	50	40	40	35	20	26.9	---
LITTER																
	4	5	36	8		3	4	8	5	5	4	7	5	3	7.5	---
TOTAL	87	80	74	73		76	79	71	66	71	67	73	70	76	74.1	---

TABLE C-2e

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 13-15  
-- WINTERFAT / MIXED SHRUB ASSOCIATION --

Species	(Road Mile) (Releve #)	Mile 13 50	Mile 13 51	Mile 13 52	Mile 14 53	Mile 14 54	Mile 15 55	Mile 15 56	Avg. Cover(%)	Frequency (%)
<b>Shrubs and Succulents</b>										
Artemisia spinescens			3						0.4	14.3
Atriplex canescens			1						0.1	14.3
Ceratoides lanata		4	3	5	13	10	22	21	11.1	100.0
Grayia spinosa		3	5	3					1.6	42.9
Opuntia erinacea								+	+	14.3
Tetradymia glabrata		10							1.4	14.3
TOTAL		17	12	8	13	10	22	21	14.7	100.0
<b>Forbs</b>										
Astragalus lentiginosus		+	+						+	28.6
Astragalus sp.				+					+	14.3
Eriogonum deflexum		+							+	14.3
Eriogonum sp.				+					+	14.3
Machaeranthera canescens		+							+	14.3
Salsola iberica			+	+	8	2	5	+	2.1	71.4
TOTAL		+	+	+	8	2	5	+	2.1	100.0
<b>Grasses</b>										
Blepharidachne kingii*			1	2					0.4	28.6
Bromus tectorum			+		3				0.4	28.6
Hilaria jamesii		9	3	8	5	5	2		4.6	85.7
Oryzopsis hymenoides		1	2	1	+				0.6	57.1
Sitanion hystrix		+							+	14.3
TOTAL		10	6	11	8	5	2	0	6.0	85.7
TOTAL VEGETATIVE COVER		30	19	20	29	17	29	22	23.7	---
BARE GROUND		36	15	37	60	68	59	73	49.7	---
GRAVEL AND ROCK		30	60	35	5	7	5	1	20.4	---
LITTER		4	6	8	6	8	7	4	6.1	---
TOTAL		70	81	80	71	83	71	78	76.3	---

TABLE C-2f

## PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN

MILES 16-18

--- WINTERFAT / MIXED SHRUB ASSOCIATION ---

Species	(Road Mile) (Releve #)	Mile 16 57 58	Mile 17 59	Mile 18 60 61	Avg. Cover(%)	Frequency (%)
<b>Shrubs and Succulents</b>						
Artemisia spinescens				+	+	20.0
Atriplex confertifolia				8	1.6	20.0
Atriplex sp.			+	1	0.2	40.0
Ceratoides lanata	18 29	19		7 5	15.6	100.0
Chrysothamnus sp.				6	1.2	20.0
Opuntia erinacea				+	+	20.0
TOTAL	18 29	19		14 13	18.6	100.0
<b>Forbs</b>						
Eriogonum sp.	+	+	1	+	0.2	80.0
Halogeton glomeratus	1 2	3		3 +	1.8	100.0
TOTAL	1 2	4		3 +	2.0	100.0
<b>Grasses</b>						
Oryzopsis hymenoides				+	+	40.0
TOTAL	0 0	0		+	+	40.0
TOTAL VEGETATIVE COVER	19 31	23		18 14	21.0	---
<b>BARE GROUND</b>						
GRAVEL AND ROCK	74 63	70		77 83	73.4	---
LITTER	0 0	0		0 0	0.0	---
	7 6	7		5 3	5.6	---
TOTAL	81 69	77		82 86	79.0	---

TABLE C-2g

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 19-21  
— WINTERFAT / MIXED SHRUB ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 19 62 63 64	Mile 20 65 66 67	Mile 21 68 69 70 71 72 73	Avg. Cover(%)	Frequency (%)
<b>Shrubs and Succulents</b>						
<i>Artemisia spinescens</i>		3	2 1 4	3	1.7	75.0
<i>Atriplex confertifolia</i>	13 23 18		18 23 11	16 2 2 4	11.0	91.6
<i>Ceratoides lanata</i>	4		7	2 2 20 17 9 10	5.9	66.7
<i>Chrysothamnus Greenei</i>				25	2.1	8.3
<i>Chrysothamnus</i> sp.				+	+	8.3
<i>Opuntia erinacea</i>			2		0.2	8.3
<i>Suaeda americana</i>			1 4		0.4	16.7
TOTAL	17 23 21	23 28 22	30 18 23 20 15 15	21.3	100.0	
<b>Forbs</b>						
<i>Eriogonum cernuum</i>			+	+	+	8.3
<i>Eriogonum</i> sp.			1	+	+	33.3
<i>Halogeton glomeratus</i>	1 + +		3		0.4	41.6
<i>Salsola iberica</i>			+	+	+	25.0
<i>Sphaeralcea ambigua</i>	1 + +	1 0 +	3 0 + 1 0		0.1	8.3
TOTAL					0.5	75.0
<b>Grasses</b>						
<i>Bromus tectorum</i>			1 1 +		0.2	25.0
<i>Hilaria jamesii</i>			+		+	8.3
<i>Oryzopsis hymenoides</i>	+	+		+	+	16.7
<i>Sitanion hystrix</i>					+	8.3
<i>Sitanion</i> sp.	+	+	1 1 +	+	+	25.0
TOTAL					0.2	75.0
TOTAL VEGETATIVE COVER	18 24 22	25 29 24	31 23 23 20 17 15	22.6	—	—
BARE GROUND	76 68 74	67 67 63	57 62 73 77 81 83	70.7	—	—
GRAVEL AND ROCK	0 0 0	0 0 7	8 7 1 1 1 1	2.2	—	—
LITTER	6 8 4	8 4 6	4 8 3 2 1 1	4.6	—	—
TOTAL	82 76 78	75 71 76	69 77 77 80 83 85	77.4	—	—

TABLE C-2h

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 22-24  
--- BLACKBRUSH / MIXED SHRUB ASSOCIATION ---

Species	(Road Mile) (Releve #)	73a	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	Avg. Cover(%)	Frequency (%)
Trees																				
Yucca brevifolia														11			4		0.9	11.8
TOTAL														11			4		0.9	11.8
Shrubs and Succulents																				
Acamptopappus shockleyi																		1	0.1	5.9
Artemisia spinescens	4	6	6	4	9	+	6	2			4	2	+						2.5	65.7
Atriplex canescens				3															0.2	5.9
Ceratoides lanata					17	14	14	5				3	9						4.0	47.1
Chrysothamnus Greenei																			0.8	11.8
Chrysothamnus viscidiflorus	12	3	11	2									4						2.2	50.0
Coleogyne ramosissima														17	18	18	16	13	4.8	29.4
Ephedra nevadensis										+							1		0.1	11.8
Ephedra sp.														5	8	1		4	1.1	23.5
Grayia spinosa	4	9	5	12	4	12		8	21	13	17	16		+	1				7.2	76.5
Hymenoclea salsola		2																+	0.1	11.8
Lycium andersonii			2	2	2			5											0.5	17.6
Opuntia echinocarpa	1														+				0.1	11.8
Opuntia erinacea																	+		+	5.9
Opuntia sp.		+																	+	5.9
Psoralea fremontii															5	2	2	2	0.6	23.5
Tetradymia axillaris												3			+	4			0.4	17.6
Yucca baccata																1			0.1	5.9
TOTAL		21	20	27	20	30	26	20	20	25	33	31	29	22	32	26	23	20	25.0	100.0

TABLE C-2h (Cont.)

Species	(Road Mile) (Releve #)	73a	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	Avg. Cover(%)	Frequency (%)
<b>Forbs</b>																				
<i>Eriogonum</i> sp.						+	+												+	11.7
<i>Lappula redowskii</i>					+														+	5.9
Unknown forb (Tonios heal)					+														+	5.9
<i>Machaeranthera canescens</i>																			+	5.9
<i>Salazaria mexicana</i>							+												+	5.9
<i>Sphaeralcea ambigua</i>	1	1							+										0.1	17.6
TOTAL	1	1							+										0.1	41.2
<b>Grasses</b>																				
<i>Blepharidachne kingii</i> *										+										
<i>Bromus rubens</i>											1	+		+	3	+	1		+	11.7
<i>Bromus tectorum</i>										1	+	1	1	6	4	7	10	3	0.3	35.3
<i>Hilaria jamesii</i>	5	4	4	3								+							1.9	52.9
<i>Muhlenbergia porteri</i>																		+	0.9	29.4
<i>Oryzopsis hymenoides</i>						+				1	+	2							+	5.9
<i>Sitanion hystrix</i>						+	+			2									0.2	29.4
<i>Sitanion</i> sp.	4		1						2		+			+				+	0.1	17.6
<i>Sporobolus cryptandrus</i>					2														0.4	41.2
TOTAL	9	4	6	5					2	4	+	4	1	6	7	7	11	3	0.1	94.1
TOTAL VEGETATIVE COVER	31	24	34	25	31	27	21	22	22	29	35	35	32	40	39	34	34	24	30.1	---
BARE GROUND	33	44	33	44	65	45	75	66		1	1	17	28	3	1	3	3	3	27.4	---
GRAVEL AND ROCK	33	30	28	25	0	25	0	7		65	60	45	35	55	58	59	60	72	38.6	---
LITTER	3	2	5	5	4	3	4	5		5	4	3	5	2	2	4	3	1	3.5	---
TOTAL	69	76	66	74	69	73	79	78		71	65	65	68	60	61	66	66	76	69.5	---



PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 25-27  
-- BLACKBRUSH / MIXED SHRUB ASSOCIATION --

Species	(Road Mile) (Releve #)										Mile 25					Mile 26					Mile 27			Avg. Cover(%)	Frequency (%)
	90	91	92	93	94	95	96	97	98	99	100	94	95	96	97	98	99	100							
<u>Trees</u>																									
<i>Yucca brevifolia</i>	0	0	0	0	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0.3	27.3				
TOTAL					3							3								0.3	27.3				
<u>Shrubs and Succulents</u>																									
<i>Acamptopappus shockleyi</i>	+	1	3								6									0.9	36.4				
<i>Atriplex canescens</i>	10	5	2	18	14	7	10													0.2	9.1				
<i>Coleogyne ramosissima</i>																				5.8	54.5				
<i>Encelia frutescens</i>	1	2	7	5				3	3		1	1								0.1	9.1				
<i>Ephedra</i> sp.																				2.2	72.7				
<i>Eriogonum fasciculatum</i>	2	2		+				6	13	2	1	1								0.3	18.2				
<i>Grayia spinosa</i>																				2.5	72.7				
<i>Krameria</i> sp.																				0.4	18.2				
<i>Larrea tridentata</i>	2							11		11										3.1	27.3				
<i>Menodora spinescens</i>																				0.2	9.1				
<i>Opuntia echinocarpa</i>	3																			0.1	18.2				
<i>Psoralea fremontii</i>	18	10	12	23	2	16	24	26	33	17	5	9	23	14						3.3	45.5				
TOTAL																				18.9	100.0				
<u>Forbs</u>																									
<i>Baileya multiradiata</i>																				+	9.1				
<i>Eriogonum inflatum</i>																				+	9.1				
<i>Sphaeralcea ambigua</i>																				+	18.2				
<i>Sphaeralcea</i> sp.																				+	9.1				
TOTAL																				+	36.4				

TABLE C-2i (Cont.)

Species	(Road Mile) (Releve #)	Mile 25				Mile 26				Mile 27				Avg. Cover(%)	Frequency (%)	
		90	91	92	93	94	95	96	97	98	99	100				
Grasses																
Blepharidachne kingii*			3	2				+	+		+	2	3	0.9	63.6	
Bromus rubens			4	2	2			+	2	5		3	3	2.3	90.9	
Bromus tectorum	3													0.3	9.1	
Hilaria rigida	2		3	7	+	1								1.2	45.5	
Muhlenbergia porteri			4	2										0.5	18.2	
Oryzopsis hymenoides			1											0.1	9.1	
Stipa sp.												2		0.2	9.1	
TOTAL		5	15	13	2	1	+	2	5			5	5	7	100.0	
TOTAL VEGETATIVE COVER																
		23	25	25	26	20	24	28	39			14	28	22	24.9	---
BARE GROUND																
		2	5	3	5	5	7	0	4			8	3	7	4.5	---
GRAVEL AND ROCK																
		73	55	59	68	67	67	70	55			74	67	67	65.6	---
LITTER																
		2	15	13	1	8	2	2	2			4	2	4	5.0	---
TOTAL		77	75	75	74	80	76	72	61			86	72	78	75.1	---

TABLE C-2j

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 28-30  
-- CREOSOTE BUSH / BURSAGE ASSOCIATION --

Species	(Road Mile) (Releve #)	101	102	103	104	105	106	107	108	109	110	111	Mile 29 112	113	Mile 30 112	113	Avg. Cover(%)	Frequency (%)
<u>Trees</u>																		
<i>Yucca brevifolia</i>													1		1		0.1	7.7
TOTAL													1		1		0.1	7.7
<u>Shrubs and Succulents</u>																		
<i>Acamptopappus shockleyi</i>	8														5		1.0	15.4
<i>Ambrosia dumosa</i>															7		0.5	7.7
<i>Coleogyne ramosissima</i>		9	6			9	17	+	1	22	23	16	13				8.9	76.9
<i>Ephedra</i> sp.	6	+				6		1					2				1.2	38.5
<i>Eriogonum fasciculatum</i>															1		0.1	7.7
<i>Grayia spinosa</i>	1				5	4	1										0.8	30.8
<i>Hymenoclea salsola</i>									12	16					2		2.3	23.1
<i>Krameria</i> sp.	4		1	6													0.8	23.1
<i>Larrea tridentata</i>	12	15	11	7		4	9			7	4		8		6		6.4	76.9
<i>Menodora spinescens</i>					+							3					0.2	15.4
<i>Psoralea fremontii</i>	3		4			2	8	+	2	4	5	2	3				2.5	76.9
TOTAL	34	24	18	22		25	35	13	19	33	32	21	26	21			24.8	100.0
<u>Forbs</u>																		
<i>Baileya multiradiata</i>					+			+									+	7.7
<i>Eriogonum inflatum</i>						+				+					+		+	7.7
<i>Sphaeralcea ambigua</i>					+										+		+	23.1
<i>Viguiera multiflora</i>					+	+			+	+					+		+	7.7
TOTAL															+		+	38.5

TABLE C-2j (Cont.)

Species	(Road Mile)		Mile 28				Mile 29							Mile 30			Avg. Cover(%)	Frequency (%)
	(Relevé #)		101	102	103	104	105	106	107	108	109	110	111	112	113			
Grasses																		
Blepharidachne kingii*						+		+		1						0.1	23.1	
Bromus rubens	4	5	2	1		1	+	+		1	+	+		3		1.3	84.6	
Hilaria rigida						+										0.0	7.7	
Oryzopsis hymenoides								+		+						0.0	15.4	
Sporobolus cryptandrus								+		+						0.0	7.7	
Unknown annual grass	4	5	2	1		1	+	1		1	+	+		3	1	0.1	7.7	
TOTAL																1.4	92.3	
TOTAL VEGETATIVE COVER																		
	38	29	20	25		27	35	17	19	34	33	21		27	27	27.1	---	
BARE GROUND																		
	16	22	12	11		10	12	38	35	5	8	4		15	63	19.3	---	
GRAVEL AND ROCK																		
	40	43	63	60		61	51	40	42	59	57	72		53	8	49.9	---	
LITTER																		
	6	6	5	4		2	2	5	4	2	2	3		5	2	3.7	---	
TOTAL																		
	62	71	80	75		73	65	83	81	66	67	79		73	73	72.9	---	

TABLE C-2k

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 31-33

-- CREOSOTE BUSH / BURSAGE ASSOCIATION --

Species	(Road Mile)		Mile 31		Mile 32		Mile 33		Avg.	Frequency
	(Releve #)	114	115	116	117	118	119	120	Cover(%)	(%)
Shrubs and Succulents										
<i>Acamptopappus shockleyi</i>	3	2	9					1	2.1	57.1
<i>Ambrosia dumosa</i>	5	10	4	2		12	8	7	6.9	100.0
<i>Ceratoides lanata</i>			2				4		0.9	28.6
<i>Ephedra nevadensis</i>					4		1	2	1.0	42.9
<i>Grayia spinosa</i>						2	1		0.4	28.6
<i>Hymenoclea salsola</i>					4	3			1.0	28.6
<i>Krameria</i> sp.	2					1	1		0.6	42.9
<i>Larrea tridentata</i>	3	4	4	8		5	6		4.3	85.7
<i>Opuntia echinocarpa</i>						1			0.1	14.3
<i>Opuntia</i> sp.					+				+	14.3
<i>Psoralea fremontii</i>		2		3		1	1	3	1.4	71.4
<i>Yucca schidigera</i>						4	1		0.7	28.6
TOTAL	13	18	19	21	21	29	23	13	19.4	100.0
Forbs										
<i>Chorizanthe rigida</i>								+	+	14.3
<i>Descurainia</i> sp.	4							2	0.6	14.3
<i>Eriogonum inflatum</i>					1			+	0.4	28.6
<i>Eriogonum</i> sp.									+	14.3
<i>Salsola</i> sp.			+						+	14.3
<i>Sphaeralcea ambigua</i>						1	1	2	0.3	28.6
TOTAL	4	+	1		1	1	1	2	1.3	85.7

TABLE C-2k (Cont.)

Species	(Road Mile) (Releve #)	Mile 31 114 115 116 117	Mile 32 118 119	Mile 33 120	Avg. Cover(%)	Frequency (%)
Grasses						
<i>Blepharidachne kingii</i> *		1	+	+	0.1	42.9
<i>Bromus rubens</i>	2 1		+		0.4	42.9
<i>Bromus tectorum</i>	3	1			0.6	28.6
<i>Oryzopsis hymenoides</i>	1				0.1	14.3
TOTAL	2 2 3 2	1 1	+	+	1.4	100.0
TOTAL VEGETATIVE COVER	15 20 22 24	31 24	16		21.7	---
BARE GROUND	9 1 71 13	5 4	5		15.4	---
GRAVEL AND ROCK	68 74 4 60	60 70	77		59.0	---
LITTER	8 5 3 3	4 2	2		3.9	---
TOTAL	85 80 78 76	69 76	84		78.3	---

TABLE C-21

## PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN

MILES 34-36

— CREOSOTE BUSH / BURSAGE ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 34 121 122 123	Mile 35 124 125	Mile 36 126 127	Avg. Cover(%)	Frequency (%)
<b>Shrubs and Succulents</b>						
<i>Acamptopappus shockleyi</i>	2	5	1	3	1.6	57.1
<i>Ambrosia dumosa</i>	4	7	16	9	8.6	100.0
<i>Atriplex confertifolia</i>	5	3	1	1	0.1	14.3
<i>Ephedra nevadensis</i>	5	3	1	1	1.3	42.9
<i>Ephedra</i> sp.					0.3	14.3
<i>Krameria</i> sp.	2	2	2	2	1.3	57.1
<i>Larrea tridentata</i>	2	1	6	3	2.7	100.0
<i>Opuntia echinocarpa</i>				4	0.6	14.3
<i>Opuntia</i> sp.	2	2		2	0.3	14.3
<i>Psoralea fremontii</i>	5	1		4	1.1	42.9
<i>Yucca schidigera</i>	20	22	23	14	1.6	42.9
TOTAL				11	19.4	100.0
<b>Forbs</b>						
<i>Chorizanthe rigida</i>	1	+	+	1	0.4	71.4
<i>Descurainia</i> sp.			1		0.1	14.3
<i>Dyssodia pentachaeta</i>				2	0.3	14.3
<i>Eriogonum inflatum</i>				2	0.3	14.3
<i>Sphaeralcea ambigua</i>	1	+	+	1	+	14.3
TOTAL				5	1.1	85.7
<b>Grasses</b>						
<i>Blepharidachne kingii</i> *	+				+	14.3
<i>Bromus rubens</i>			+		+	14.3
<i>Bromus tectorum</i>	+				+	14.3
Unknown annual grass	+	0	0	+	+	14.3
TOTAL				0	+	28.6
TOTAL VEGETATIVE COVER	22	22	23	16	20.9	—
BARE GROUND	5	5	15	49	7	—
GRAVEL AND ROCK	70	70	59	30	70	—
LITTER	3	3	3	5	3	—
TOTAL	78	78	77	84	80	—
				84	73	—
					79.1	—

TABLE C-2m

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DYN  
MILES 37-39  
— CREOSOTE BUSH / BURSAGE ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 37 128	Mile 38 130	Mile 39 131	Mile 39 132	Mile 39 133	Avg. Cover(%)	Frequency (%)
<u>Shrubs and Succulents</u>								
<i>Ambrosia dumosa</i>		7	2	9	3	2	3.8	83.3
<i>Ceratoides lanata</i>					2		0.3	16.7
<i>Krameria</i> sp.		2		3			0.8	33.3
<i>Larrea tridentata</i>			3	4	5	8	5.0	83.3
TOTAL		9	5	16	10	8	10.0	100.0
<u>Forbs</u>								
<i>Chorizanthe rigida</i>		+					+	16.7
<i>Eriogonum</i> sp.		+				+	+	16.7
TOTAL		+	0	0	0	+	+	33.3
<u>Grasses</u>								
<i>Hilaria rigida</i>					3		0.5	16.7
TOTAL					3		0.5	16.7
TOTAL VEGETATIVE COVER		9	15	16	13	8	12.2	—
<u>BARE GROUND</u>								
GRAVEL AND ROCK		7	20	41	77	86	48.7	—
LITTER		81	63	40	5	2	35.2	—
		3	2	3	5	4	4.0	—
TOTAL		91	85	84	87	92	87.8	—



TABLE C-2n

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 40-42

— CREOSOTE BUSH / BURSAGE ASSOCIATION —

Species	(Road Mile)		Mile 40				Mile 41				Mile 42				Avg. Cover(%)	Frequency (%)
	Releve #		134	135	136	137	138	139	140	141	142	143				
Shrubs and Succulents																
Ambrosia dumosa	2		9	16	6	13		5	3	21	9		8.4	90.0		
Atriplex canescens			+	5	+			1			2		0.2	10.0		
Ephedra sp.													0.6	40.0		
Hymenoclea salsola									5		2		0.7	20.0		
Krameria sp.					+			1		1			0.2	30.0		
Larrea tridentata	3	5	2	14	11	9		3	1	5	23		7.6	100.0		
Psoralea fremontii	3	7	11	35	17	22	+						+	10.0		
TOTAL								10	9	27	36		17.7	100.0		
Forbs																
Chorizanthe rigida								+					+	10.0		
Descurainia sp.						+							+	10.0		
Eriogonum inflatum											+		+	10.0		
Eriogonum sp.	1	1											0.2	20.0		
Plantago insularis								+					+	10.0		
Sphaeralcea sp.	+												+	10.0		
TOTAL	1	1	0	0	0	+		+	0	0	+		0.2	50.0		
Grasses																
Bromus rubens			+	+	+	1		+	1	1	9		1.2	80.0		
Hilaria rigida				2	+								0.2	20.0		
Oryzopsis hymenoides			+										+	10.0		
TOTAL	0	0	+	2	+	1		+	1	1	9		1.4	80.0		
TOTAL VEGETATIVE COVER																
	5	8	12	37	19	24		11	13	28	45		20.2	---		
BARE GROUND																
	90	84	80	5	34	13		10	65	0	41		42.2	---		
GRAVEL AND ROCK																
	+	1	5	55	40	60		77	20	70	6		33.4	---		
LITTER																
	5	7	3	3	7	3		2	2	2	8		4.2	---		
TOTAL																
	95	92	88	63	81	76		89	87	72	55		79.8	---		

TABLE C-2o

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 43-45  
— CREOSOTE BUSH / BURSAGE ASSOCIATION —

(Road Mile)		Mile 43					Mile 44					Mile 45					Avg.	Frequency
Species	(Releve #)	144	145	146	147	148	149	150	151	152	153	154	155	Cover(%)	(%)			
Shrubs and Succulents																		
Ambrosia dumosa	8	3	19	12		4	1	11	6	+	5	10	14	7.8	100.0			
Atriplex confertifolia	1					2	6	2	2		1			1.1	41.7			
Atriplex polycarpa										9				0.1	8.3			
Chrysothamnus sp.													2	0.8	8.3			
Ephedra sp.										1				0.2	8.3			
Hymenoclea salsola														0.1	8.3			
Larrea tridentata	4	7	7	11		+	14	4	5		6	7	10	6.3	91.7			
Lepidium fremontii						1			7		+			+	8.3			
Psorothamnus fremontii												3	2	1.1	33.3			
Yucca baccata	13	10	26	23		7	21	17	20		1			0.1	8.3			
TOTAL										10	13	20	28	17.3	100.0			
Forbs																		
Chorizanthe rigida					+					+				+	8.3			
Descurainia sp.														+	8.3			
Eriogonum inflatum									1			+	+	0.1	25.0			
Rumex hymenosepalus	+													+	8.3			
Sphaeralcea ambigua	+	0	0	+		0	0	0	1		+	+	+	+	8.3			
TOTAL														0.1	50.0			
Grasses																		
Blepharidachne kingii*												2		0.2	8.3			
Bromus rubens	+	+	4	3				1	+	2		+	+	0.8	75.0			
TOTAL	+	+	4	3				1	+	2		2	+	1.0	75.0			
TOTAL VEGETATIVE COVER	14	10	30	26		8	21	18	21	12	14	23	29	18.8	---			
BARE GROUND	68	83	30	31		3	74	3	3	8	2	4	8	26.4	---			
GRAVEL AND ROCK	14	5	34	38		87	0	77	77	77	81	71	60	51.8	---			
LITTER	4	2	6	5		2	5	2	4	3	3	2	3	3.4	---			
TOTAL	86	90	70	74		92	79	82	84	88	86	77	71	81.6	---			

TABLE C-2p

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 46-48  
— ACACIA / BURSAGE / WASH ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 46 156 157 158 159	Mile 47 160 161 162 163	Mile 48 164 165 166 167	Avg. Cover(%)	Frequency (%)
<b>Shrubs and Succulents</b>						
Acacia greggii						25.0
Ambrosia dumosa	4	16		30	2.8	83.3
Atriplex polycarpa		3		11	5.9	8.3
Chilopsis linearis		26			0.3	8.3
Encelia frutescens			1	3	2.2	8.3
Ephedra sp.			1	1	0.3	16.7
Eriogonum fasciculatum			1	3	0.8	41.7
Gutierrezia microcephala					0.2	8.3
Krameria sp.			2		+	8.3
Larrea tridentata	4	1	1	3	0.2	33.3
Lepidium fremontii			2		3.3	83.3
Opuntia echinocarpa			1		0.2	8.3
Stephanomeria pauciflora				1	0.1	8.3
Yucca baccata	+				+	8.3
Yucca schidigera	8	17	8		+	8.3
TOTAL		8	15	15	0.7	16.7
		12	13	9	17.6	100.0
<b>Forbs</b>						
Baileya sp.					+	8.3
Dyssodia pentachaeta					+	8.3
Eriogonum inflatum				+	0.1	25.0
Eriogonum sp.		+			+	16.7
Salsola sp.		1			0.1	8.3
Sphaeralcea ambigua			+	+	0.4	33.3
Sphaeralcea sp.			+		+	8.3
Tiquila nuttallii				+	+	8.3
TOTAL		0	+	+	0.6	75.0
		1	0	+		

TABLE C-2p (Cont.)

Species	(Road Mile)	Mile 46				Mile 47				Mile 48				Avg. Cover(%)	Frequency (%)
	(Releve #)	156	157	158	159	160	161	162	163	164	165	166	167		
Grasses															
Blepharidachne kingii*						+	+	+			+		6	0.5	33.3
Bromus rubens				+	6	+	+							0.5	33.3
Hordeum jubatum														+	8.3
Oryzopsis hymenoides					+									+	8.3
TOTAL		0	+	+	6	+	+	+	0	0	0	+	6	1.0	58.3
TOTAL VEGETATIVE COVER		8	19	34	24	18	16	13	20	15	10	46	22	20.4	100.0
BARE GROUND		6	8	30	71	10	12	4	10	4	4	3	3	13.8	100.0
GRAVEL AND ROCK		83	71	25	0	67	65	82	68	79	84	49	70	61.9	100.0
LITTER		3	2	11	5	5	7	1	2	2	2	2	5	3.9	100.0
TOTAL		92	81	66	76	82	84	87	80	85	90	54	78	79.6	100.0

TABLE C-2g

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 49-51

— ACACIA / BURSAGE / WASH ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 49					Mile 50					Mile 51					Avg. Cover(%)	Frequency (#)
		168	169	170	171		172	173	174	175		176	177	178	179			
<b>Shrubs and Succulents</b>																		
<i>Acacia greggii</i>					2		1		18								1.8	25.0
<i>Acamptopappus shockleyi</i>							1						1		2		0.3	25.0
<i>Ambrosia dumosa</i>	7	10	7	6			1	10	2	7		2	3	6	4		5.4	100.0
<i>Echinocereus engelmannii</i>	4									+							+	8.3
<i>Ephedra nevadensis</i>								3					3				0.8	25.0
<i>Ephedra</i> sp.	4	4	+						3					1			0.7	33.3
<i>Eriogonum fasciculatum</i>							4		2								0.5	16.6
<i>Ferocactus acanthodes</i>																		
var. <i>lecontei</i>																		
<i>Gutierrezia microcephala</i>							1		6				1				0.1	8.3
<i>Hymenoclea salsola</i>												4	3				0.6	16.6
<i>Krameria</i> sp.							3								3		0.5	16.6
<i>Larrea tridentata</i>	1	4	3	1				3		4		+	2	2			1.7	75.0
<i>Menodora spinescens</i>															1		0.1	8.3
<i>Opuntia basilaris</i>												1					0.1	8.3
<i>Opuntia echinocarpa</i>								1									0.1	8.3
<i>Porophyllum gracile</i>							2										0.2	8.3
<i>Psoralea fremontii</i>										2				+			0.2	16.7
<i>Thamnosma montana</i>													2				0.2	8.3
<i>Yucca schidigera</i>	5	17	18	10	13		13	17	31	13		6	15	9	10		1.3	25.0
<b>TOTAL</b>												13	15	9	10		14.9	100.0
<b>Forbs</b>																		
<i>Baileya multiradiata</i>															+		0.1	16.7
<i>Baileya</i> sp.	1											1					0.1	8.3
<i>Dyssodia pentachaeta</i>					+		2										0.2	16.7
<i>Eriogonum inflatum</i>	1	+										1	1				0.3	33.3
<i>Eriogonum</i> sp.	+							1		+			+		+		0.1	41.7

TABLE C-2g (Cont.)

Species	(Road Mile)		Mile 49					Mile 50					Mile 51					Avg. Cover(%)	Frequency (%)
	(Releve #)		168	169	170	171	172	173	174	175	176	177	178	179					
Forbs (Cont.)																			
<u>Plantago insularis</u>					+														
Sphaeralcea ambigua	1	1			+		2	2	+	1	3						+		
Sphaeralcea sp.																			
TOTAL	1	3	+	+	+		4	3	+	1	5	1	+	+		1.5	8.3 66.7 8.3 100.0		
Grasses																			
<u>Aristida purpurea</u>						+	1										+		
Blepharidachne kingii*		1			+		1	+	+	+	3	1		+			+		
TOTAL	0	1	0	+	+		2	+	+	+	3	1	0	+		0.1 0.5 0.6	33.3 75.0 75.0		
TOTAL VEGETATIVE COVER																			
	18	22	11	15			18	20	32	16	21	17	10	12		17.7	—		
BARE GROUND																			
	5	6	4	9			5	1	15	6	2	2	2	8		5.4	—		
GRAVEL AND ROCK																			
	76	70	81	73			75	77	49	75	72	80	85	77		74.2	—		
LITTER																			
	1	2	4	3			1	2	4	3	5	1	3	3		2.7	—		
TOTAL																			
	82	78	89	85			81	80	68	84	79	83	90	88		82.3	—		

TABLE C-2r

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILE 52

— ACACIA / BURSAGE / WASH ASSOCIATION —

Species	(Road Mile) (Releve #)		Mile 52					Avg. Cover(%)	Frequency (%)
	180	181	182	183					
Shrubs and Succulents									
<u>Ambrosia dumosa</u>		9	8	2			4.8	75.0	
Bebbia juncea				6			1.5	25.0	
Echinocereus engelmannii	1						0.3	25.0	
Ephedra nevadensis	3						0.8	25.0	
Hymenoclea salsola	3				1		1.0	50.0	
Krameria sp.	1	1	2	1			1.3	100.0	
Larrea tridentata		4	5				2.3	50.0	
Opuntia echinocarpa		1					0.3	25.0	
Thamnosma montana		4					1.0	25.0	
TOTAL	8	19	15	10			13.0	100.0	
Forbs									
<u>Encelia frutescens</u>	5						1.3	25.0	
Eriogonum inflatum	2			+			0.4	50.0	
TOTAL	7	0	0	+			1.4	50.0	
Grasses									
<u>Aristida purpurea</u>	3						0.6	25.0	
Blepharidachne kingii*		2	1	+			0.6	75.0	
TOTAL	3	2	1	+			1.2	75.0	
TOTAL VEGETATIVE COVER	18	21	16	10			16.3	---	
BARE GROUND									
GRAVEL AND ROCK	2	2	4	5			3.3	---	
LITTER	76	74	77	80			76.8	---	
	3	3	3	4			3.3	---	
TOTAL	81	79	84	89			83.3	---	

TABLE C-2s

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 53 AND 54

--- BIG SAGEBRUSH / RABBITBRUSH ASSOCIATION ---

Species	(Road Mile) (Releve #)	Mile 53			Mile 54			Avg. Cover(%)	Frequency (%)
		184	185	186	187	188			
<b>Shrubs and Succulents</b>									
<i>Artemisia tridentata</i>					5			1.0	20.0
<i>Atriplex canescens</i>		4	1	2				1.4	60.0
<i>Ceratoides lanata</i>		1	3	4	4			2.4	80.0
<i>Chrysothamnus viscidiflorus</i>			15	12	5	5		7.4	80.0
<i>Ephedra nevadensis</i>					6	4		2.0	40.0
<i>Grayia spinosa</i>					2	1		0.6	40.0
<i>Gutierrezia microcephala</i>						5		1.0	20.0
<i>Tetradymia glabrata</i>		3	1		3	2		1.8	80.0
TOTAL		8	20	18	20	22		17.6	100.0
<b>Forbs</b>									
<i>Astragalus lentiginosus</i>					1			0.2	20.0
<i>Brickellia</i> sp.		4						0.8	20.0
<i>Cleome</i> sp.		+						+	20.0
<i>Descurainia</i> sp.		1						0.2	20.0
<i>Eriogonum</i> sp.		1						0.2	20.0
<i>Lepidium</i> sp.				+				+	20.0
<i>Machaeranthera</i> sp.				1				0.2	20.0
<i>Sisymbrium</i> sp.		+	+		1			0.2	60.0
<i>Sphaeralcea</i> sp.		1						0.2	20.0
TOTAL		7	+	1	2	0		2.0	80.0
<b>Grasses</b>									
<i>Bromus rubens</i>		5	+		1	+		1.2	100.0
<i>Hilaria rigida</i>			2	3				1.0	40.0
<i>Oryzopsis hymenoides</i>		2	3	2	4	1		2.4	100.0
<i>Sitanion</i> sp.		10		1	1			2.4	60.0
TOTAL		17	5	6	5	2		7.0	
TOTAL VEGETATIVE COVER		32	25	25	27	24		26.6	---
BARE GROUND		21	34	20	20	35		26.0	---
GRAVEL AND ROCK		1	35	52	50	35		34.6	---
LITTER		48	4	2	3	6		12.6	---
TOTAL		70	73	74	73	76		73.2	---



TABLE C-2t

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 55-57  
-- BIG SAGEBRUSH / RABBITBRUSH ASSOCIATION --

Species	(Road Mile) (Releve #)	Mile 55 189 190	Mile 56 191 192 193	Mile 57 194 195	Avg. Cover(%)	Frequency (%)
<b>Shrubs and Succulents</b>						
Artemisia spinescens			4		0.6	14.3
Artemisia tridentata	20 13		9		6.0	42.9
Ceratoides lanata			1	2 3	0.9	42.9
Chrysothamnus viscidiflorus			4 8 5	10	3.9	57.1
Cowania mexicana	6				0.9	14.3
Ephedra nevadensis	9 6		3 3		3.0	57.1
Grayia spinosa			6		1.7	28.6
Gutierrezia microcephala	5		3 10	13	2.6	42.9
Hymenoclea salsola					1.9	14.3
Tetradymia glabrata			1	4	0.7	28.6
TOTAL	29 30	20 21 22	15 17	22.0	100.0	
<b>Forbs</b>						
Astragalus lentiginosus	+			+	+	28.6
Sisymbrium sp.				+	+	14.3
TOTAL	+	0	0 0 0	+	+	42.9
<b>Grasses</b>						
Bromus rubens			+	+	+	71.4
Hilaria jamesii				2	0.3	14.3
Oryzopsis hymenoides			1 2 2	3	1.1	57.1
Sitanion sp.			1		0.1	14.3
TOTAL	0 0	2 2 2	5	+	1.6	71.4
TOTAL VEGETATIVE COVER	29 30	22 23 24	21 18	23.9	---	---
BARE GROUND	39 5	10 10 8	8 5	12.1	---	---
GRAVEL AND ROCK	28 50	65 62 65	69 75	59.1	---	---
LITTER	4 15	3 5 3	2 2	4.9	---	---
TOTAL	71 70	78 77 76	79 82	76.1	---	---

TABLE C-2u

## PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN

MILES 58-61

— BIG SAGEBRUSH / RABBITBRUSH ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 58 196	Mile 59 197 198	Mile 60 199 200	Mile 61 201 202 203 204	Avg. Cover(%)	Frequency (%)
<u>Shrubs and Succulents</u>							
<i>Artemisia nova</i>				12		1.3	11.1
<i>Artemisia spinescens</i>		1	4		3 2 1	1.2	55.6
<i>Ceratoides lanata</i>		14	3	1		2.0	33.3
<i>Chrysothamnus viscidiflorus</i>			15 2	13	2 7	4.3	55.6
<i>Chrysothamnus</i> sp.				3	9 3	1.7	33.3
<i>Cowania mexicana</i>					3	0.3	11.1
<i>Ephedra nevadensis</i>				5	3 4 2 2	1.7	55.6
<i>Grayia spinosa</i>		3	1 4		10 12 5	3.9	66.7
<i>Hymenoclea salsola</i>				6	1 3 2	0.7	33.3
<i>Tetradymia glabrata</i>			16 13	20	2	0.9	22.2
TOTAL		18			18 22 19 17	18.1	100.0
<u>Forbs</u>							
<i>Euphorbia</i> sp.					1	0.1	11.1
<i>Machaeranthera canescens</i>					+	+	11.1
<i>Sisymbrium</i> sp.					+	+	11.1
<i>Sphaeralcea ambigua</i>		2				0.2	11.1
TOTAL		2	0 0	0 0	1 + + 0	0.3	44.4
<u>Grasses</u>							
<i>Bromus rubens</i>		1	+ 1	+	+	0.3	66.7
<i>Hilaria jamesii</i>			6	1		0.8	22.2
<i>Oryzopsis hymenoides</i>		3	1 1	2	2 1	1.1	66.7
<i>Sitanion</i> sp.			1 2	2 1	2 5 3 2	2.0	88.9
TOTAL		4	8 4	5 1	4 6 3 3	4.2	100.0
TOTAL VEGETATIVE COVER		24	24 17	25 21	23 29 22 20	22.8	---
BARE GROUND		4	8 12	22 56	62 5 62 5	26.2	---
GRAVEL AND ROCK		60	65 69	50 17	13 74 11 73	48.0	---
LITTER		12	3 2	3 6	2 2 5 2	4.1	---
TOTAL		76	76 83	75 79	77 81 78 80	78.3	---

TABLE C-2v

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN  
MILES 62-64  
-- BIG SAGEBRUSH / RABBITBRUSH ASSOCIATION --

Species	(Road Mile) (Releve #)	Mile 62					Mile 63					Mile 64					Avg. Cover(%)	Frequency (%)
		205	206	207	208		209	210	211	212	213	214						
<b>Shrubs and Succulents</b>																		
<i>Artemisia spinescens</i>							2	3	3								0.8	30.0
<i>Ceratoides lanata</i>						1						2					0.3	20.0
<i>Chrysothamnus viscidiflorus</i>			3	2	3			3				2					1.3	50.0
<i>Chrysothamnus sp.</i>	5					4											0.9	20.0
<i>Ephedra nevadensis</i>	9		1	5		2		3		5	1						2.6	70.0
<i>Ephedra viridis</i>	5																0.5	10.0
<i>Grayia spinosa</i>	4	4	10	11		6	5	7	10	4		4					6.5	100.0
<i>Hymenoclea salsola</i>	5	5	2	1		1	4										1.3	50.0
<i>Yucca baccata</i>	6											2					0.8	20.0
TOTAL	18	17	21	20		16	18	10	15	5		10					15.0	100.0
<b>Forbs</b>																		
<i>Sphaeralcea sp.</i>								1									0.1	10.0
TOTAL	0	0	0	0		0	0	1	0	0		0					0.1	10.0
<b>Grasses</b>																		
<i>Bromus rubens</i>			2	+				1				1					0.4	40.0
<i>Bromus tectorum</i>	1																0.1	10.0
<i>Hilaria jamesii</i>						1		5	5	7		8					2.6	50.0
<i>Oryzopsis hymenoides</i>						2	1	1	3			1					0.8	50.0
<i>Sitanion sp.</i>	2			2		3	4	5	3	9		4					3.2	80.0
TOTAL	3	0	2	2		6	5	11	9	19		14					7.1	90.0
TOTAL VEGETATIVE COVER	21	17	23	22		22	23	22	24	25		24					22.3	---
BARE GROUND	66	10	5	15		64	25	10	23	22		25					26.5	---
GRAVEL AND ROCK	11	70	67	61		12	50	66	50	50		45					48.2	---
LITTER	2	3	5	2		2	2	2	3	3		6					3.0	---
TOTAL	79	83	77	78		78	77	78	76	75		76					77.7	---

APPENDIX D  
WILDLIFE DATA  
FOR NEVADA

TABLE D-1

WILDLIFE SIGN AND SIGHTINGS  
COYOTE OBTS

Species	Observation Area																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<b>Mammals</b>																		
Unidentified bat												1						
possibly <u>Myotis</u> sp.																		
Desert cottontail																		
Black-tailed jackrabbit	1						1	1	1		1	2			1	1	1	1
White-tailed antelope squirrel																		1
Kangaroo rat							X											
Mouse							X			X								
Coyote							X			X			X					
Kit fox																		
Kit fox den			1		1		1					1						
Badger den						2			1									
Unidentified burrows	X	X	X	X	X	X		X	X			X	X		X			
<b>Birds</b>																		
<u>Quail</u> sp.		1																
Mourning dove	1																	
Hummingbird sp.															1			
Western kingbird	1																	
Rough-winged swallow														2			6	
Cactus wren												1					4	
Thrasher sp.											X							
Loggerhead shrike																		
Black-throated sparrow	2	1				1		4										1

X = Sign observed  
Number = Actually observed

TABLE D-1 (cont.)

Species	Observation Area																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<hr/>																		
Reptiles																		
Desert tortoise (shell)	1							2								1		1
Zebra-tailed lizard								1						1				
Leopard lizard	1					1				1		2						1
Side-blotched lizard	10	3	2	1	1	3	3	13	1	1		3	1	11	6	8		3
Western whiptail																		

TABLE D-1 (cont.)

Species	Observation Area				
	19	20	21	22	
<u>Mammals</u>					
Black-tailed jackrabbit		1			1
Rabbit		X			X
Kangaroo rat burrow	X				X
Burrows	X	X			X
<u>Birds</u>					
Western kingbird					2
Rough-winged swallow		1			2
Cactus wren					X
Loggerhead shrike	1				
Black-throated sparrow		2			
<u>Reptiles</u>					
Leopard lizard	1	1			1
Side-blotched lizard	2				
Desert horned lizard		1			
Western whiptail lizard	3	6	3		3
Red racer		1			

TABLE D-2a

WILDLIFE SIGN AND SIGHTINGS  
NEVADA DTN: MILES 0 - 24

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24
<b>Mammals</b>								
Black-tailed jackrabbit	34	1		3	2			1
Desert cottontail	2	1	1					
Rabbit (pellets)	X	X	X	X	X	X	X	X
White-tailed antelope squirrel		1						
Antelope squirrel sp.	3							
Woodrat	X							
Coyote	X	X		1		1		X
Kit fox (den)					2			
Badger (den)					2			X
Unidentified burrows	X			X	X	X	X	X
<b>Birds</b>								
Turkey vulture	1	1	1					
Red-tailed hawk		1						
Golden eagle				1	1			
American kestrel		1	1					
Western kingbird			1					
Nighthawk sp.	2							
Mockingbird	1							
Raven	2	2	1					
Sage thrasher	2							
Horned lark	2				10	26	30	4
Loggerhead shrike	2	1						
Blue-gray gnatcatcher	2	1						
Black-throated sparrow	12							
Sparrow sp.	6							

X = Sign; Number = Actual sighting.



TABLE D-2a (Cont.)

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24
Reptiles								
Side-blotched lizard	21	5	10	8	5	2	3	6
Western whiptail lizard	3	1	2	1				1
Leopard lizard		1	1					
Western fence lizard		1						
Striped whipsnake			1?					

TABLE D-2b

WILDLIFE SIGN AND SIGHTINGS  
NEVADA DTN: MILES 24 - 42

Road Mile	24-27	27-30	30-33	33-36	36-39	39-42
<u>Mammals</u>						
Coyote	X	X				
Badger (den)	X					
Black-tailed jackrabbit	1					1
Desert cottontail		1				X
Rabbit (pellets)	X	X				1
White-tailed antelope squirrel			1			X
Woodrat						
Unidentified ground squirrel		X		1		
Unidentified burrows	X			X	X	
<u>Birds</u>						
Gambel's quail		5				
Roadrunner				2*		
Cactus wren	5					
Horned lark	1	*				
<u>Reptiles</u>						
Side-blotched lizard		8	12	11		
Western whiptail	7		2	1	X	
Leopard lizard			1			
Zebra-tailed lizard	1					
Unidentified lizard	1					

\* Sighted on returning from the field.

TABLE D-2c

WILDLIFE SIGN AND SIGHTINGS  
NEVADA DYN: MILES 42 - 66

Road Mile	42-45	45-48	48-51	51-54	54-57	57-60	60-63	63-66
<u>Mammals</u>								
Coyote	X	X			X	X	X	
Kangaroo rat	X					1		X
Black-tailed jackrabbit	1	2						
Desert cottontail	X	X	X		X	X	X	X
Rabbit					X			
Kangaroo rat		1						
Antelope squirrel					1			
Unidentified rodent sp.	X	X	X		X	5	1	X
Unidentified burrows								
<u>Birds</u>								
Black-throated sparrow	1				4			
Swainson's hawk						2		
Turkey vulture					13	11	1	
Horned larks					10			
Mourning dove		1			1	1		
Loggerhead shrike						1		
Unidentified buteo								
<u>Reptiles</u>								
Side-blotched lizard				1	10	2	1	1
Western whiptail	6	6	1	1	4	1	1	
Leopard lizard		1				1		
Lizard	X							

APPENDIX E

RELEVE QUADRAT  
DATA FOR  
UTAH

TABLE E-1a

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD PREFERRED OBTS  
 — PINYON-JUNIPER ASSOCIATION —

Species	Releve Number													Avg. Cover(%)	Frequency (%)
	1	2	3	4	5	6	7								
<u>Trees</u>															
Juniperus osteosperma	18	28	26	25	20	28	17							23.1	100.0
TOTAL	18	28	26	25	20	28	17							23.1	---
<u>Shrubs</u>															
Artemisia nova		4												0.6	14.3
Artemisia spinescens							+							+	14.3
Artemisia tridentata	12	6		14	12	5	3							7.4	85.7
Chrysothamnus viscidiflorus						2								0.3	14.3
Chrysothamnus sp.							7							1.0	14.3
Ephedra nevadensis							1							0.1	14.3
Eriogonum microthecum			+				2							0.3	28.6
Gutierrezia sarothrae	3	+	4	1	1									1.3	71.4
Leptodactylon pungens						+	+							+	28.6
Purshia tridentata	15	10	4	15	13	8	13							0.1	14.3
TOTAL														11.1	---
<u>Forbs</u>															
Arabis sp.	+													+	14.3
Astragalus lentiginosus						1	+							0.1	28.6
Astragalus sp.	+		+											+	28.6
Chaenactis douglasii						+								+	14.3
Cryptantha sp.			+			+								+	28.6
Descurainia pinnata					1									0.1	14.3
Descurainia sp.						1								0.1	14.3
Eriogonum sp.						2								0.3	28.6
Euphorbia sp.							+							+	14.3
Lathyrus sp.						+								+	14.3
Lepidium montanum							+							+	14.3
Penstemon sp.						+								+	14.3
Physaria chambersii						+								+	14.3
Senecio multilobatus						+								+	14.3
Stephanomeria exigua								1						0.1	14.3
Streptanthus cordatus														+	14.3
TOTAL	+	0	+	2	0	4	+							0.9	---

+ = trace, less than 1%

TABLE E-1a (Cont.)

Species	Relve Number							Avg. Cover(%)	Frequency (%)
	1	2	3	4	5	6	7		
<u>Grasses</u>									
Aristida purpurea	1		+	1			1	0.4	57.1
Bromus tectorum	1	2	+		15	1	+	2.7	85.7
Hilaria jamesii	1		2	1	1	1	+	0.7	71.4
Oryzopsis hymenoides					+			+	14.3
Sitanion hystrix						+	+	+	28.6
Sporobolus cryptandrus		+		2				0.3	28.6
Stipa comata	+			1	1			0.3	42.9
TOTAL	3	2	2	5	17	1	1	4.4	---
TOTAL VEGETATIVE COVER	36	40	32	47	50	41	31	39.6	---
BARE GROUND	52	25	14	28	20	20	31	27.1	---
GRAVEL AND ROCK	1	7	58	10	27	30	30	23.3	---
LITTER	10	34	25	15	3	5	4	13.7	---
TOTAL	63	66	97	53	50	55	65	64.1	---

TABLE E-1b

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD PREFERRED OBTS  
 -- BLACK SAGEBRUSH ASSOCIATION --

Species	Releve Number					Avg. Cover (%)	Frequency (%)
	1	2	3	4	5		
<u>Shrubs and Succulents</u>							
Artemisia nova	4	8	11	4	3	6.0	100.0
Ceratoides lanata		2	2	1	3	1.6	80.0
Chrysothamnus viscidiflorus		4	4	5	9	4.4	80.0
Eriogonum microthecum	+			1		0.2	40.0
Gutierrezia sarothrae	+	+	+			+	60.0
Opuntia polycantha				+		+	20.0
TOTAL	4	14	17	11	15	12.2	---
<u>Forbs</u>							
Descurainia pinnata				+		+	20.0
Eriogonum ovalifolium		+				+	20.0
TOTAL	0	+	0	+	0	+	---
<u>Grasses</u>							
Bromus tectorum	2	1	2	2	3	2.0	100.0
Hilaria jamesii		+	+	3		0.6	60.0
Oryzopsis hymenoides		2	2	3	3	2.0	80.0
Sitanion hystrix		1	+			0.2	40.0
Stipa comata	+		+		2	0.4	60.0
TOTAL	2	4	4	8	8	5.2	---
TOTAL VEGETATIVE COVER	6	18	21	19	23	17.4	---
<u>BARE GROUND</u>							
GRAVEL AND ROCK	0	45	36	5	5	18.2	---
LITTER	91	31	36	73	65	59.2	---
TOTAL	3	6	7	3	7	5.2	---
TOTAL	94	82	79	81	77	82.6	---

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILLFORD PREFERRED OBITS  
 --- BIG SAGEBRUSH ASSOCIATION ---

Species	Releve Number																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Trees																				
Juniperus osteosperma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shrubs and Succulents																				
Artemisia tridentata	5	4	4	6	4	18	33	38	15	20	32	18	20	12	30	33	35	30	20	18
Chrysothamnus viscidiflorus	10	8	7	9	8							2	15	+		1				1
Ephedra nevadensis				+									+							
Grayia spinosa				1		3		+	1	1	2			1		4			2	
Gutierrezia sarothrae																				
Lycium pallidum				+				+												
Opuntia polycantha		+																		
Opuntia whipplei																				
TOTAL	15	12	11	16	12	21	33	38	16	21	34	20	35	13	30	38	35	30	22	19
Forbs																				
Arabis sp.												+				+				
Astragalus lentiginosus					3											+				
Astragalus sp.																+				
Chaenactis douglasii																				
Comandra umbellata															2					
Cryptantha sp.																				
Descurainia pinnata								1								1	+			
Erigeron sp.												+								
Eriogonum sp.																				
Euphorbia glyptosperma																	+			
Gilia sp.																				
Leucelene ericoides																				
Sisymbrium altissimum																				
Sphaeralcea coccinea													+							
Sphaeralcea sp.																				
Stephanomeria exigua																			+	
Streptanthella longirostris																				
TOTAL	0	0	0	0	3	0	0	1	0	0	0	+	+	0	2	1	+	0	+	0



TABLE E-1c (Cont.)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<hr/>																				
Grasses																				
Agropyron cristatum	4																			
Agropyron smithii																				
Aristida purpurea																				
Bouteloua gracilis																				
Bromus tectorum	6	1	+	4	1	5			+	3	+		+		+		1	12	1	2
Vulpia octoflora	1								1		3			4	+		+			1
Hilaria jamesii	2				+	7		1	4	10	5		2	+	1		4	3		
Hordeum jubatum																				
Oryzopsis hymenoides			4	+								3		1	+		+		13	+
Poa sandbergii																				
Sitanion hystrix		+	1	+	+							+			+					
Sitanion sp.																				
Sporobolus cryptandrus		+			+				+	+			2	8					+	+
Stipa comata	6	4	5	4	5	12	0	1	5	13	8	3	4	13	2	0	6	15	22	13
TOTAL																				
TOTAL VEGETATIVE COVER	21	16	16	20	20	33	44	40	21	34	42	23	39	26	34	39	41	45	44	32
<hr/>																				
BARE GROUND	25	50	50	24	19	50	46	45	43	49	37	60	49	56	49	40	47	10	26	37
GRAVEL AND ROCK	49	28	29	45	33	2	3	5	25	2	18	5	5	10	5	5	7	37	10	20
LITTER	5	6	5	11	28	15	7	10	8	4	3	10	5	7	10	15	3	8	20	10
TOTAL	79	84	84	80	80	67	56	60	76	55	58	75	59	73	64	60	57	55	56	67

TABLE E-1c (Cont.)

Species	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
<b>Trees</b>																				
<i>Juniperus osteosperma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL																				
<b>Shrubs and Succulents</b>																				
<i>Artemisia tridentata</i>	15	25	22	24	15	23	12	25	18	22	14	5	14	12	6	5	6	8	12	18
<i>Chrysothamnus viscidiflorus</i>	5	2		4	6		5					3	3	3	2	2	3	4	3	3
<i>Ephedra nevadensis</i>												1				+				
<i>Grayia spinosa</i>																				
<i>Gutierrezia sarothrae</i>				1			+		1	+	1	1	1	1	2	3	+	1	2	3
<i>Lycium pallidum</i>															+					
<i>Opuntia polycantha</i>							+		1	+										
<i>Opuntia whipplei</i>																				
TOTAL	20	27	22	29	21	23	17	25	19	23	14	10	15	16	11	10	7	13	19	21
<b>Forbs</b>																				
<i>Arabis</i> sp.	+	+																		
<i>Astragalus lentiginosus</i>																				
<i>Astragalus</i> sp.								+			+									
<i>Chaenactis douglasii</i>																				
<i>Comandra umbellata</i>																				
<i>Cryptantha</i> sp.																				
<i>Descurainia pinnata</i>																				
<i>Erigeron</i> sp.	+				+				+		+		+	+	+	+				+
<i>Eriogonum</i> sp.																				
<i>Euphorbia glyptosperma</i>																				
<i>Gilia</i> sp.																				
<i>Leucelene ericoides</i>																				
<i>Sisymbrium altissimum</i>																				
<i>Sphaeralcea coccinea</i>																				
<i>Sphaeralcea</i> sp.	+								+		+									
<i>Stephanomeria exigua</i>																				
<i>Streptanthella longirostris</i>																				
TOTAL	+	+	0	0	+	+	+	+	0	+	+	+	+	+	+	+	0	+	+	+

TABLE E-1c (Cont.)

Species	Releve Number																			
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
<u>Grasses</u>																				
Agropyron cristatum						2														
Agropyron smithii				+	+														1	
Aristida purpurea																				
Bouteloua gracilis			9	30	+	1	1	1	1	2	+	3	2	1			3			
Bromus tectorum										+					+		+		+	
Vulpia octoflora												2	4		3		+		2	+
Hilaria jamesii	5	4	4	+		+	1	1												
Hordeum jubatum																				
Oryzopsis hymenoides			15										+		1				+	+
Poa sandbergii																	1			
Sitanion hystrix								+	+	1	+	+	4	1	+	+	+	+	+	1
Sitanion sp.																				
Sporobolus cryptandrus	1									1		+	+		4				+	
Stipa comata	1	6	28	30	+	1	4	2	1	4	+	5	10	2	8	+	4	3	+	1
TOTAL																				
TOTAL VEGETATIVE COVER	21	33	50	59	21	24	21	27	20	27	15	15	25	18	19	10	11	16	19	22
BARE GROUND	54	47	10	16	25	48	50	20	15	53	20	19	28	27	28	70	4	51	49	66
GRAVEL AND ROCK	15	15	26	13	50	20	21	45	60	7	60	60	40	50	41	16	81	25	26	8
LITTER	8	5	14	12	4	7	6	8	5	13	5	6	7	5	12	4	4	8	6	4
TOTAL	77	67	50	41	79	75	77	73	80	73	85	75	75	82	81	90	89	84	81	78

**TABLE E-1c (Cont.)**

[illegible]

TABLE E-1c (Cont.)

Species	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
<u>Grasses</u>																				
Agropyron cristatum																				
Agropyron smithii							2									2		1	1	+
Aristida purpurea																				
Bouteloua gracilis																				
Bromus tectorum																				
Vulpia octoflora																				
Hilaria jamesii					3				1	1	3	5	2			1		1		+
Hordeum jubatum																	2	2	2	
Oryzopsis hymenoides	2								1	5	5	4				2	3	2	1	4
Poa sandbergii																				
Sitanion hystrix	+	1		+	4	1	2						2							+
Sitanion sp.			+																	
Sporobolus cryptandrus																				
Stipa comata																				
TOTAL	2	8	6	+	7	1	10	9	11	17	20	25	4	2	0	9	11	8	6	11
TOTAL VEGETATIVE COVER	18	24	21	35	28	29	20	23	27	32	37	35	30	31	13	20	21	20	20	20
BARE GROUND	62	55	15	49	58	15	3	2	15	20	23	28	35	18	55	25	19	15	5	5
GRAVEL AND ROCK	15	14	56	4	2	42	67	69	38	40	25	10	25	40	25	34	50	50	72	72
LITTER	5	7	8	12	12	14	10	6	20	8	15	25	10	11	7	20	10	15	3	3
TOTAL	82	76	79	65	72	71	80	77	73	68	63	63	70	69	87	79	79	80	80	80



TABLE E-1c (Cont.)

Species	61	62	63	64	65	66	67	68	69	70	71	72	Avg. Cover (%)	Frequency (%)
<u>Grasses</u>														
Agropyron cristatum													0.1	2.8
Agropyron smithii													+	1.4
Aristida purpurea												1	0.2	12.5
Bouteloua gracilis													0.0	1.4
Bromus tectorum													2.2	25.0
Vulpia octoflora													0.2	20.8
Hilaria jamesii													1.3	54.2
Hordeum jubatum													+	1.4
Oryzopsis hymenoides													1.0	38.9
Poa sandbergii													0.0	1.4
Sitanion hystrix													0.3	45.8
Sitanion sp.													0.0	2.8
Sporobolus cryptandrus													0.4	23.6
Stipa comata													0.6	33.3
TOTAL													6.5	---
TOTAL VEGETATIVE COVER	17	24	28	28	28	29	21	17	28	28	23	24	26.4	---
<u>BARE GROUND</u>														
GRAVEL AND ROCK	5	15	5	2	19	70	5	4	64	41	19	10	31.8	---
LITTER	73	55	60	64	43	3	72	63	3	28	50	58	32.6	---
TOTAL	5	6	7	6	9	6	6	2	5	8	7	3	8.7	---
	83	76	72	72	71	79	83	69	72	77	76	71	72.9	---

TABLE E-1d

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD PREFERRED OBITS  
— PERENNIAL GRASSLAND —

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
<u>Trees</u>																					
Juniperus osteosperma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<u>Shrubs and Succulents</u>																					
Atriplex canescens	5			7							+	3		4	8	4	1				
Artemisia tridentata			3				5		2							2	9		5		
Ceratoides lanata	1	4	2	4	12				4									3	1	2	
Chrysothamnus viscidiflorus	10	12		2														5		1	
Ephedra nevadensis																				1	
Eriogonum microthecum																				1	
Gutierrezia sarothrae				2			5			1	1			1				4	10	5	
Lycium pallidum														+						+	
Opuntia polycantha																					
Opuntia whipplei														8							
TOTAL	16	16	5	15	12	0	5	5	6	0	1	4	0	12	9	7	9	12	16	9	
<u>Forbs</u>																					
Astragalus lentiginosus																				+	
Astragalus sp.																					
Chenopodium sp.										+											
Comandra umbellata																					
Descurainia pinnata														+			1			+	
Ipomopsis congesta																					
Plantago sp.																					
Salsola iberica																					
Sphaeralcea coccinea																			+		
Stephanomeria exigua																					
TOTAL	0	0	0	0	0	0	0	0	0	+	+	0	0	+	0	0	1	+	0	+	



TABLE E-1d (Cont.)

Species	Releve Number																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<u>Grasses</u>																				
Agropyron smithii														1						
Aristida purpurea																				
Bromus tectorum			2	+	11	1	1	10	1	+	1	7	+	1		10	1	4		
Vulpia octoflora	1	2									+						+		1	
Hilaria jamesii	7	10	5	9		9	3			32	2	2	2	8	+		10	1		1
Oryzopsis hymenoides	25	10	23	18	17	38	40	3	12	5	8	6	35		6	17	10	10	11	7
Sitanion hystrix									2	1		1	1	3	1					
Sporobolus cryptandrus	+			1		1	+		5	+	1	+							2	1
Stipa comata		4				3		23	5	+	7	6	7		8				2	5
TOTAL	33	26	30	28	28	52	44	36	25	38	19	22	45	13	15	27	21	15	16	15
TOTAL VEGETATIVE COVER	49	42	35	43	40	52	49	41	31	38	20	26	45	25	24	34	31	27	32	24
BARE GROUND																				
GRAVEL AND ROCK	22	43	40	33	—	25	20	41	39	48	67	22	51	60	20	28	32	20	10	15
LITTER	18	5	18	12	—	+	+	3	22	2	7	41	2	3	53	4	2	43	48	21
TOTAL	10	10	7	12	—	23	30	15	8	12	6	11	4	12	3	34	35	10	10	40
	50	58	65	57	—	48	50	59	69	62	80	74	57	75	76	66	69	73	68	76

TABLE E-1d (Cont.)

Species	Releve Number					Avg. Cover(%)	Frequency (%)
	21	22	23	24	25		
<u>Trees</u>							
Juniperus osteosperma	0	+	0	0	0	+	4.0
TOTAL							
<u>Shrubs and Succulents</u>							
Atriplex canescens						0.0	4.0
Artemisia tridentata	6	2			+	1.8	44.0
Ceratoides lanata						0.8	20.0
Chrysothamnus viscidiflorus	6	2		3	6	2.0	52.0
Ephedra nevadensis			1			1.2	24.0
Eriogonum microthecum						0.0	4.0
Gutierrezia sarothrae	1	3	25	2	4	2.6	52.0
Lycium pallidum						+	4.0
Opuntia polycantha	+					+	8.0
Opuntia whipplei						0.3	4.0
TOTAL	13	7	26	5	10	8.8	---
<u>Forbs</u>							
Astragalus lentiginosus						+	4.0
Astragalus sp.			+			+	4.0
Chenopodium sp.						+	4.0
Comandra umbellata			+			+	4.0
Descurainia pinnata						0.0	8.0
Ipomopsis congesta						+	4.0
Plantago sp.						+	4.0
Salsola iberica						+	4.0
Sphaeralcea coccinea						+	4.0
Stephanomeria exigua	+				+	+	8.0
TOTAL	+	0	+	0	+	0.0	---

TABLE E-1d (Cont.)

Species	Releve Number					Avg. Cover(%)	Frequency (%)
	21	22	23	24	25		
<u>Grasses</u>							
Agropyron smithii						0.0	4.0
Aristida purpurea		2		+		0.1	8.0
Bromus tectorum		3		5	1	2.4	72.0
Vulpia octoflora			1		1	0.4	44.0
Hilaria jamesii	2	4	1			4.2	68.0
Oryzopsis hymenoides	2		3	3		12.4	88.0
Sitanion hystrix						0.4	24.0
Sporobolus cryptandrus	3				5	0.8	48.0
Stipa comata	7	3	5		1	3.4	60.0
TOTAL	14	12	10	8	8	24.0	---
TOTAL VEGETATIVE COVER	27	19	36	13	18	32.8	---
BARE GROUND	20	43	57	35	29	32.8	---
GRAVEL AND ROCK	47	30	+	35	49	18.6	---
LITTER	6	8	5	17	4	13.2	---
TOTAL	73	81	62	87	82	64.7	---

TABLE E-1e

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD PREFERRED OBITS  
— WASH ASSOCIATION —

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	Avg. Cover (%)	Frequency (%)
<u>Trees</u>															
<i>Juniperus osteosperma</i>	40													3.1	7.7
TOTAL	0	40	0	0	0	0	0	0	0	0	0	0	0	3.1	—
<u>Shrubs and Succulents</u>															
<i>Artemisia filifolia</i>												5		0.4	7.7
<i>Artemisia rova</i>									2					0.2	7.7
<i>Artemisia tridentata</i>	18	17	19	25	43		12	5	6	11	3		2	12.4	84.6
<i>Atriplex canescens</i>							3				3			0.5	15.4
<i>Ceratoides lanata</i>											1			0.1	7.7
<i>Chrysothamnus nauseosus</i>							14	4	7					1.9	23.1
<i>Chrysothamnus viscidiflorus</i>			29		12		3	3					12	4.5	38.5
<i>Ephedra nevadensis</i>										3		2		0.2	7.7
<i>Grayia spinosa</i>										3				0.2	7.7
<i>Gutierrezia sarothrae</i>	5							3				1		0.7	23.1
<i>Lycium pallidum</i>	1				4							1		0.5	15.4
<i>Opuntia polycantha</i>				+					1					0.2	23.1
TOTAL	24	17	48	25	43	16	26	12	19	20	7	9	14	21.5	—
<u>Forbs</u>															
<i>Ambrosia acanthicarpa</i>					+									+	7.7
<i>Astragalus lentiginosus</i>												1		0.1	7.7
<i>Astragalus sp.</i>	+							+						+	23.1
<i>Descurainia pinnata</i>					4	+	+	+						0.3	30.8
<i>Sphaeralcea coccinea</i>					+									+	7.7
<i>Sphaeralcea sp.</i>								+	+					+	15.4
<i>Streptanthella longirostris</i>					+			+	+	+	+	+		+	7.7
TOTAL	+	0	0	0	4	+	+	+	+	+	0	1	0	0.4	—

TABLE E-1e (Cont.)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	Avl. Cover(%)	Frequency (%)
<u>Grasses</u>															
Agropyron cristatum				2				4						46.2	15.4
Aristida purpurea									3					23.1	7.7
Bromus tectorum	3	50	13	8	3	1		10	2	6	14	5	1	8.9	92.3
Hilaria jamesii	1	+			1	2						7	3	1.1	46.1
Oryzopsis hymenoides					+				1	4	15		5	1.9	38.5
Sitanion hystrix								+					+	+	15.4
Sporobolus cryptandrus	+								1					0.1	15.4
Stipa comata	+				1				2	2				0.4	30.8
TOTAL	4	50	13	10	5	3	0	14	9	12	29	12	9	13.1	---
TOTAL VEGETATIVE COVER	29	107	61	35	52	19	26	26	29	32	36	22	23	38.2	---
<u>BARE GROUND</u>															
GRAVEL AND ROCK	62	20	15	40	40	24	20	15	1	1	31	26	51	26.6	---
LITTER	5	25	19	5	3	50	31	4	65	57	3	50	22	26.1	---
TOTAL	3	20	5	20	5	7	23	55	5	10	30	2	4	14.5	---
	70	65	39	65	48	81	74	74	71	68	64	78	77	67.2	---

TABLE E-2a

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBTS  
-PINYON-JUNIPER ASSOCIATION-

Species	Releve Number											Avg. Cover (%)	Frequency (%)
	1	2	3	4	5	6	1	2	3	4	5		
<u>Trees</u>													
<i>Juniperus osteosperma</i>	35	36	25	35	45	15							100.0
TOTAL	35	36	25	35	45	15							---
<u>Shrubs and Succulents</u>													
<i>Artemisia tridentata</i>	15	6	6	12	1	20							100.0
<i>Chrysothamnus Greenei</i>						1							16.7
<i>Chrysothamnus viscidiflorus</i>		4	+	+	+								66.7
<i>Ephedra nevadensis</i>		1		+									33.3
<i>Ephedra viridis</i>	1												16.7
<i>Gutierrezia sarothrae</i>	+			+	1	+							66.7
TOTAL	16	11	6	12	2	21							---
<u>Forbs</u>													
<i>Abronia</i> sp.			+										16.7
<i>Astragalus lentiginosus</i>		+	+	+	+								66.7
<i>Cryptantha</i> sp.					+								16.7
<i>Machaeranthera canescens</i>					+								16.7
<i>Sphaeralcea</i> sp.					+								16.7
<i>Townsendia incana</i>					+								33.3
TOTAL	0	+	+	+	+	0							---
<u>Grasses</u>													
<i>Agropyron</i> sp.	+												16.7
<i>Bromus tectorum</i>	8	+	12	9	8	2							83.3
<i>Hilaria jamesii</i>	+		1	+		+							50.0
<i>Oryzopsis hymenoides</i>		+	+	+									66.7
<i>Poa</i> sp.	+												16.7
<i>Sitanion hystrix</i>	+	+		+		1							66.7
<i>Sporobolus cryptandrus</i>													16.7
<i>Stipa comata</i>		+											16.7
TOTAL	8	+	13	9	8	3							---
TOTAL VEGETATIVE COVER	59	47	44	56	55	39							---
<u>BARE GROUND</u>													
<i>GRAVEL AND ROCK</i>	5	4	8	15	5	3							---
<i>LITTER</i>	30	39	22	25	30	43							---
TOTAL	34	8	30	35	48	15							---
TOTAL	69	51	60	75	83	61							---

TABLE E-2b

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBTS  
-BLACK SAGEBRUSH ASSOCIATION-

Species	1	2	3	4	5	6	7	8	9	10	11	Avg. Cover(%)	Frequency (%)
<b>Shrubs</b>													
Artemisia nova	18	23	28	22	30	27	22	12	15	15	20	21.1	100
Artemisia tridentata								2				0.2	9.1
Atriplex canescens									2			0.2	9.1
Ceratoides lanata								+				+	9.1
Chrysothamnus viscidiflorus	4	2	3	2	2	+	1	2			+	1.5	81.8
Ephedra nevadensis			1									0.1	9.1
Eriogonum microthecum						3	+	+				0.3	27.3
Grayia spinosa				1								0.1	9.1
Gutierrezia sarothrae	1			+		1	1	1	2		3	0.8	63.6
Opuntia polycantha		+										+	9.1
TOTAL	23	25	32	25	32	31	24	15	19	17	23	24.2	—
<b>Forbs</b>													
Astragalus lentiginosus			+						+			+	18.2
Eriogonum ovalifolium						+						+	9.1
Gilia sp.			+			+						+	18.2
Haplopappus acaulis								+				+	9.1
Sphaeralcea sp.						+		+	+			+	18.2
TOTAL	0	0	+	0	0	+	0	+	+	0	0	+	—
<b>Grasses</b>													
Bromus tectorum	2	6		+	+	+	+	+	1	4	2	1.4	90.9
Hilaria jamesii						1						0.1	9.1
Oryzopsis hymenoides	+		+		+		+			+		+	45.4
Poa sandbergii				+			+					+	18.2
Poa sp.								+				+	9.1
Sitanion hystrix			+		+	+	+	+	+	+	1	0.1	72.7
Stipa comata						1						0.1	9.1
TOTAL	2	6	+	+	+	2	+	+	1	4	3	1.6	—
TOTAL VEGETATIVE COVER	25	31	32	25	32	33	24	15	22	21	26	26.0	—
<b>BARE GROUND</b>	2	3	4	3	1	2	1	1	6	3	1	2.5	—
<b>GRAVEL AND ROCK</b>	70	61	60	69	64	61	72	80	69	69	72	67.9	—
<b>LITTER</b>	3	5	2	2	2	1	1	1	3	7	1	2.6	—
TOTAL	75	69	66	74	67	64	74	82	78	79	74	72.9	—

TABLE E-2c

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBITS  
— BIG SAGEBRUSH ASSOCIATION —

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Releve Number																					
Shrubs																					
Artemisia nova													2								
Artemisia pygmaea												1									
Artemisia tridentata	25	14	30	10	18	15	20	45	18	33	26	28	35	18	32	24	14	9	11	9	
Atriplex canescens	5																				
Chrysothamnus Greenei	6			1	3	4												1	2	3	
Chrysothamnus viscidiflorus				8					3	3	3			3	1		1				
Cowania mexicana																					
Ephedra nevadensis																					
Grayia spinosa	8			5	2								1					2	3	2	
Gutierrezia sarothrae																					
Opuntia polycantha	+				+																
TOTAL	31	27	30	24	23	19	20	45	21	33	29	28	39	21	33	24	15	12	16	14	
Forbs																					
Astragalus lentiginosus	+	+	+	+	+			+		+		+			+	+		+	+		
Brickellia sp.																					
Cryptantha sp.																					
Descurainia pinnata								+							+	+		+	+		
Descurainia sp.															+						
Eriogonum ovalifolium									+												
Eriogonum sp.																					
Oenothera sp.																		+			
Sphaeralcea sp.																					
Streptanthella longirostris	+		+																		
Townsendia incana	+	+	+	+	+	0	0	+	+	+	0	+	0	0	+	+	+	+	+	0	
TOTAL	+	+	+	+	+	0	0	+	+	+	0	+	0	0	+	+	+	+	+	0	
Grasses																					
Agropyron spicatum																					
Aristida purpurea																					
Bromus tectorum	+			5	8	25	9	3		+		1	5	+	+	+				3	



TABLE E-2c (Cont.)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Grasses (Cont.)																				
Vulpia octoflora				+			10				+	1	+						3	
Hilaria jamesii				+	+	+			+									+		1
Oryzopsis hymenoides																				
Poa sandbergii																				
Sitanion hystrix			+					+	+	1	+	+		+		+	+			1
Sporobolus cryptandrus																				
Stipa comata				1					+				1							
TOTAL	0	+	+	6	8	25	19	3	+	1	+	2	6	+	+	+	+	+	0	8
TOTAL VEGETATIVE COVER	31	27	30	30	31	44	39	48	21	34	29	30	45	21	33	24	17	13	18	22
BARE GROUND	32	3	18	48	30	18	35	13	9	5	7	22	5	1	6	3	5	3	5	4
GRAVEL AND ROCK	30	60	45	15	30	30	15	35	65	57	61	45	43	76	57	71	57	65	69	69
LITTER	6	8	6	6	8	8	11	3	3	3	2	2	7	1	3	1	11	9	8	5
TOTAL	68	71	69	69	68	56	61	51	77	65	70	69	55	78	66	75	73	77	82	78

TABLE E-2c (Cont.)

Species	Releve Number																			
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
<b>Shrubs</b>																				
Artemisia nova																				
Artemisia pygmaea																				
Artemisia tridentata	8	16	28	23	35	28	38	23	14	18	42	14	23	22	8	22	14	18	27	11
Atriplex canescens	6	+	3	6	+	2			4	+			+	4		5				2
Chrysothamnus Greenei																				
Chrysothamnus viscidiflorus															12					
Cowania mexicana									1											
Ephedra nevadensis																				
Grayia spinosa	4	1						2	+	+	2			4					1	
Gutierrezia sarothrae																				
Opuntia polycantha	18	17	31	29	35	30	38	25	19	18	44	14	23	30	20	22	19	18	28	13
TOTAL																				
<b>Forbs</b>																				
Astragalus lentiginosus					+		+			+	+	+	+			1		+		
Brickellia sp.																				
Cryptantha sp.														+						+
Descurainia pinnata						+	+			+										
Descurainia sp.																				
Eriogonum ovalifolium																				
Eriogonum sp.																				
Oenothera sp.																				
Sphaeralcea sp.																				
Streptanthella longirostris	+			+	+	+	+		+	+	+	+	+	+	+	0	1	+	+	+
Townsendia incana	+	+	+	+	+	+	+	0	0	+	+	+	+	+	+	0	1	+	+	+
TOTAL																				
<b>Grasses</b>																				
Agropyron spicatum														3						1
Aristida purpurea						+														
Bromus tectorum	+				+		+	8	7	1	3	+	+	2	3	5	1	+		

TABLE E-2c (Cont.)

Species	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Grasses (Cont.)																				
<i>Vulpia octoflora</i>			2																	
<i>Hilaria jamesii</i>							+		3	2				3		+		2		
<i>Oryzopsis hymenoides</i>																				
<i>Poa sandbergii</i>							+							+						
<i>Sitanion hystrix</i>	+	+	1	+	1	+	+	+	+	+	+	+	+	+	+	1	3	4	+	+
<i>Sporobolus cryptandrus</i>																				
<i>Stipa comata</i>	+	+	3	+	1	+	+	8	10	3	3	+	+	8	3	6	4	6	1	+
TOTAL	18	18	35	29	38	30	39	34	29	25	47	14	23	38	23	28	24	24	29	13
TOTAL VEGETATIVE COVER																				
BARE GROUND	56	4	8	4	8	12	6	3	35	22	31	8	7	5	5	3	4	20	32	22
GRAVEL AND ROCK	14	75	33	60	48	49	51	55	32	45	18	75	66	43	69	62	66	53	36	57
LITTER	12	3	14	7	6	9	4	8	4	8	4	3	4	14	3	7	6	3	3	8
TOTAL	82	82	55	71	62	70	61	66	71	75	53	86	77	62	77	72	76	76	71	87

TABLE E-2c (Cont.)

Species	Releve Number																			
	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
<b>Shrubs</b>																				
<i>Artemisia nova</i>																				
<i>Artemisia pygmaea</i>																				
<i>Artemisia tridentata</i>	7	16	13	15	8	22	25	6	8	14	12	12	11	10	18	15	17	6	13	14
<i>Atriplex canescens</i>																				
<i>Chrysothamnus Greenei</i>	5	1	2		4	4	2		6								+	4	3	3
<i>Chrysothamnus viscidiflorus</i>																				
<i>Cowania mexicana</i>																				
<i>Ephedra nevadensis</i>						+														
<i>Grayia spinosa</i>									2	2	1	+			+			5	3	4
<i>Gutierrezia sarothrae</i>												+								
<i>Opuntia polycantha</i>					1															
TOTAL	12	17	15	15	13	26	27	6	16	14	14	13	11	10	18	15	17	15	19	21
<b>Forbs</b>																				
<i>Astragalus lentiginosus</i>	+	+	1			2			1	1					+	+	+	1	1	+
<i>Brickellia</i> sp.								3												
<i>Cryptantha</i> sp.	+																			
<i>Descurainia pinnata</i>									+	+					+			+	1	+
<i>Descurainia</i> sp.																				
<i>Eriogonum ovalifolium</i>																				
<i>Eriogonum</i> sp.																				
<i>Oenothera</i> sp.																				
<i>Sphaeralcea</i> sp.																				
<i>Streptanthella longirostris</i>																				
<i>Townsendia incana</i>	+	+	1	0	0	2	0	3	1	1	0	0	0	0	0	+	+	1	2	+
TOTAL																				
<b>Grasses</b>																				
<i>Agropyron spicatum</i>							2													
<i>Aristida purpurea</i>																			1	
<i>Bromus tectorum</i>	3	1	1	+	1	1	2	2	+	+	7	+	8	1	5					

TABLE E-2c (Cont.)

Species	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Releve Number																				
Grasses (Cont.)																				
Vulpia octoflora																				
Hilaria jamesii	1		+	1				+	1	+	+	1	2	1	+	+	2		3	
Oryzopsis hymenoides						+														
Poa sandbergii																				
Sitanion hystrix	1	1	1	2	3	2	+					1		2		2	4		1	
Sporobolus cryptandrus												1								
Stipa comata																				
TOTAL	5	2	2	3	4	3	4	2	1	+	7	3	10	4	5	2	6	1	4	0
TOTAL VEGETATIVE COVER	17	19	18	18	18	31	31	11	18	15	21	16	21	14	23	17	23	17	25	21
BARE GROUND	12	10	5	10	7	—	2	—	12	10	9	10	20	5	2	5	5	3	10	3
GRAVEL AND ROCK	66	62	70	64	60	—	57	—	50	58	45	59	34	67	65	65	71	70	57	64
LITTER	5	9	7	8	15	—	10	—	20	17	25	15	25	14	10	13	11	10	8	12
TOTAL	83	81	82	82	82	—	69	—	82	85	79	84	79	86	77	83	87	83	75	79

TABLE E-2c (Cont.)

Species	Releve Number		Avg. Cover(%)	Frequency (%)
	61	62		
Shrubs				
Artemisia nova			0.0	1.6
Artemisia pygmaea			0.0	1.6
Artemisia tridentata	8	+	18.3	98.4
Atriplex canescens			0.1	1.6
Chrysothamnus Greenei	4		1.3	45.2
Chrysothamnus viscidiflorus			0.5	14.5
Cowania mexicana			0.2	1.6
Ephedra nevadensis			0.0	3.2
Grayia spinosa			0.1	1.6
Gutierrezia sarothrae	2	3	0.8	38.7
Opuntia polycantha			0.0	6.4
TOTAL	14	3	21.4	---
Forbs				
Astragalus lentiginosus			0.2	48.4
Brickellia sp.			0.1	1.6
Cryptantha sp.			+	3.2
Descurainia pinnata			1.6	32.3
Descurainia sp.	+	+	+	3.2
Eriogonum ovalifolium			+	1.6
Eriogonum sp.			+	1.6
Oenothera sp.			+	1.6
Sphaeralcea sp.			+	1.6
Streptanthella longirostris			+	16.1
Townsendia incana			+	1.6
TOTAL	+	+	0.2	---
Grasses				
Agropyron spicatum			0.1	3.2
Aristida purpurea			0.0	4.8
Bromus tectorum		5	2.0	69.3

TABLE E-2c (Cont.)

Species	Releve Number		Avg. Cover (%)	Frequency (%)
	61	62		
Grasses (Cont.)				
<i>Vulpia octoflora</i>			0.0	1.6
<i>Hilaria jamesii</i>	25		1.0	38.7
<i>Oryzopsis hymenoides</i>			0.0	19.3
<i>Poa sandbergii</i>			+	1.6
<i>Sitanion hystrix</i>			0.5	67.7
<i>Sporobolus cryptandrus</i>	1		0.0	4.8
<i>Stipa comata</i>			0.0	48.0
TOTAL	0	31	3.8	---
TOTAL VEGETATIVE COVER	14	34	25.6	---
BARE GROUND	3	21	11.7	---
GRAVEL AND ROCK	73	30	51.4	---
LITTER	10	15	8.1	---
TOTAL	86	66	71.3	---

TABLE E-2d

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBTS  
 --- SAND SAGEBRUSH ASSOCIATION ---

Species	Releve Number				Avg. Cover(%)	Frequency (%)
	1	2	3	4		
<b>Shrubs</b>						
Artemisia filifolia	9	14	2	4	7.3	100.0
Artemisia tridentata	8		1		2.3	50.0
Chrysothamnus Greenei		2	5	3	2.5	75.0
Chrysothamnus viscidiflorus	5	4		2	2.8	75.0
Ephedra nevadensis			1		0.3	25.0
Gutierrezia sarothrae	+	1	2		0.8	75.0
TOTAL	22	21	11	9	15.8	---
<b>Forbs</b>						
Abronia sp.		+			+	25.0
Ambrosia acanthicarpa		+		1	0.3	50.0
Astragalus lentiginosus			+		+	25.0
Descurainia pinnata		+	+	+	+	75.0
Oenothera pallida			+	+	+	50.0
Salsola iberica				+	+	25.0
Streptanthella longirostris	+	+			+	25.0
TOTAL	+	+	+	1	0.3	---
<b>Grasses</b>						
Bromus tectorum	+	+			+	50.0
Hilaria jamesii	+				+	25.0
Oryzopsis hymenoides			+	+	+	50.0
Stipa comata		+			+	25.0
TOTAL	+	+	+	+	+	---
TOTAL VEGETATIVE COVER	22	21	11	10	16.0	---
<b>BARE GROUND</b>	67	55	30	30	45.5	---
<b>GRAVEL AND ROCK</b>	5	20	50	30	26.3	---
<b>LITTER</b>	4	4	9	30	11.8	---
TOTAL						---



TABLE E-2e

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBTS  
— GREASEWOOD/SALTBUSS ASSOCIATION —

Species	Releve Number					Avg. Cover(%)	Frequency (%)
	1	2	3	4	5		
<u>Shrubs</u>							
Artemisia spinescens			3	1	1	1.0	60.0
Artemisia tridentata				1		0.2	20.0
Atriplex confertifolia			4	3	8	3.0	60.0
Chrysothamnus Greenei		25	1	2		5.6	60.0
Gutierrezia sarothrae		5	2	1	4	2.4	80.0
Opuntia polycantha				+		+	20.0
Sarcobatus vermiculatus	50	18	12	3	0	16.6	80.0
TOTAL	50	48	22	11	13	28.8	---
<u>Forbs</u>							
Astragalus lentiginosus		+				+	20.0
Descurainia pinnata					+	+	20.0
Descurainia sp.		+				+	20.0
Gilia sp.					+	+	20.0
Lepidium montanum	+					+	20.0
TOTAL	+	+	0	0	+	+	---
<u>Grasses</u>							
Bromus tectorum			+	+	+	+	60.0
Vulpia octoflora				1		0.2	20.0
Oryzopsis hymenoides				+		+	20.0
Sitanion hystrix			1	+	3	0.8	60.0
Sporobolus airoides				3		0.6	20.0
TOTAL	0	0	1	4	3	1.6	---
TOTAL VEGETATIVE COVER	50	48	25	18	17	31.6	---
<u>BARE GROUND</u>							
GRAVEL AND ROCK	46	16	67	15	74	43.6	---
LITTER	4	5	6	4	6	19.6	---
TOTAL	50	51	75	82	83	5.0	---
						68.2	---

TABLE E-2f

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBTS  
 -- WASH ASSOCIATION --

Species	Relieve Number													Avg. Cover(%)	Frequency (%)
	1	2	3	4	5	6	7	8	9	10	11	12	13		
<u>Trees</u>															
Juniperus osteosperma	0	0	0	0	0	0	0	0	0	0	10	0	0	0.8	7.7
TOTAL														0.8	
<u>Shrubs</u>															
Artemisia spinescens	18	5		+	16	18	6			32	5			+	7.7
Artemisia tridentata				2										7.6	53.8
Atriplex confertifolia	1	3					+							0.2	7.7
Brickellia oblongifolia												3	2	0.7	38.5
Chrysothamnus Greenei					4					1	3			0.6	23.1
Chrysothamnus nauseosus			8					28	16			17	20	6.9	38.5
Cowania mexicana	15					10	23							3.7	23.1
Gutierrezia sarothrae					2									0.2	7.7
Sarcobatus vermiculatus				6										0.5	7.7
TOTAL	33	6	11	8	22	28	29	28	16	33	8	20	22	20.3	
<u>Forbs</u>															
Astragalus lentiginosus											+			+	7.7
Astragalus sp.	+													+	7.7
Chaenactis douglasii		+												+	7.7
Descurainia pinnata					+					+				+	15.4
Euphorbia glyptosperma							+	+	+					+	23.1
Lepidium perfoliatum														+	7.7
Oenothera pallida				+										+	7.7
Sphaeralcea sp.										+				+	7.7
Streptanthella longirostris					+					+				+	15.4
TOTAL	+	+	0	+	+	0	+	+	+	+	+	0	+	+	

TABLE E-2f (Cont.)

Species	Releve Number													Avg. Cover(%)	Frequency (%)
	1	2	3	4	5	6	7	8	9	10	11	12	13		
Grasses															
Bromus tectorum	2	7	2	+	+	14	8	6	2		4	2	3	3.9	92.3
Hilaria jamesii											1			0.1	7.7
Oryzopsis hymenoides											1	1		0.2	15.4
Poa sandbergii						+	+	+						+	15.4
Sitanion hystrix				+	+	+	+	+	+	2	1			0.2	61.5
TOTAL	2	7	2	+	+	14	8	6	2	2	7	3	3	4.3	---
TOTAL VEGETATIVE COVER	35	13	13	8	23	43	39	34	18	35	25	23	25	25.7	---
BARE GROUND	16	10	5	88	33	6	2	2	10	42	5	20	25	20.3	---
GRAVEL AND ROCK	45	71	79	2	40	42	54	58	69	11	58	37	25	45.5	---
LITTER	4	6	3	2	4	9	5	6	3	12	12	20	25	8.5	---
TOTAL	65	87	87	92	77	57	61	66	82	65	75	77	75	74.3	---

TABLE E-2g

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBTS  
 --- DISTURBED AREAS\* ---

Species	Releve Number					Avg. Cover(%)	Frequency (%)
	1	2	3	4	5		
<u>Shrubs</u>							
Artemisia spinescens	1					0.2	20.0
Artemisia tridentata		3				0.6	20.0
Artemisia sp.	8					1.6	20.0
Chrysothamnus Greenei	4	4	3			1.2	60.0
Chrysothamnus viscidiflorus	2					0.4	20.0
Gutierrezia sarothrae	5	1	2	2		1.0	80.0
TOTAL	9	12	9	5	0	7.0	---
<u>Forbs</u>							
Descurainia pinnata				4		0.8	20.0
Halogeton glomeratus				23		4.6	20.0
Oenothera trichocalyx			1			0.2	20.0
Sphaeralcea sp.			2			0.4	20.0
TOTAL	0	0	0	3	27	6.0	---
<u>Grasses</u>							
Bromus tectorum	18	10	9	20		11.4	80.0
Hilaria jamesii	4					0.8	20.0
Oryzopsis hymenoides	+			2		0.4	40.0
Sporobolus cryptandrus				2		0.4	20.0
Stipa comata	+	3				0.6	40.0
TOTAL	22	10	12	24	0	13.6	---
TOTAL VEGETATIVE COVER	31	22	21	32	27	26.6	---
<u>BARE GROUND</u>							
GRAVEL AND ROCK	52	5	3	10	63	26.6	---
LITTER	6	65	66	50	2	37.8	---
TOTAL	10	8	10	8	8	8.8	---
TOTAL	68	78	79	68	73	73.2	---

\* Roadsides, watering areas, corrals.

TABLE E-3a

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE BERYL PREFERRED OBITS  
— PINYON/JUNIPER ASSOCIATION —

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Releve Number																			
<u>Trees</u>																				
Juniperus osteosperma	32	25	18	40	20	25	6	10	12	20	21	15	28	35	3	10	35	18	5	6
Pinus monophylla	1	15	7	20	15	25	3	4	25	15	18	5	15	22	5	2	5	2	4	6
TOTAL	33	40	25	60	35	50	9	14	37	35	39	20	43	35	25	15	37	18	9	12
<u>Shrubs and Succulents</u>																				
Artemisia frigida	3	18	6	10			1	8	20	15	4	10		7	3		8	15	8	8
Artemisia nova			9	2	2	1	4	6	+				8	5			7			
Artemisia tridentata			+				+						2	2			2			
Chrysothamnus viscidiflorus																				
Coryphantha vivipara					+			+			+									
Cowania mexicana																				+
Eriogonum microthecum	1	+	+									+					1	+		
Gutierrezia sarothrae	+	+	2	+	+			+	+	1	2	+	4	3	1					
Leptodactylon pungens	1		+				+										1			
Leptodactylon sp.				1				1	+	+		1							5	2
Lygodesmia spinosa								+												
Opuntia polycantha	+	+			+	+							+		+	+				
Opuntia sp.																				
Penstemon sp.							+			+	1					+				
Phlox sp.												1								
Purshia tridentata																				
TOTAL	5	18	17	13	2	1	5	15	20	16	7	11	15	17	4	+	19	15	13	10
<u>Forbs</u>																				
Arabis sp.																+				
Astragalus lentiginosus															+					
Astragalus sp.	+						+	+		+				+		+	+	+	+	
Chaenactis douglasii							1						+	+	+	+	+	+		
Cordylanthus parviflorus											+									
Comandra umbellata			+																+	
Cryptantha sp.								+						+						
Eriogonum sp.												+	+							
Eriogonum umbellatum				1				+				1				+				

TABLE E-3a (Cont.)

Species	Releve Number																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Forbs (Cont.)																				
Eriogonum sp.							2			1	+		+		1	1			+	1
Gilia sp.								+												
Haplopappus spinulosus																				
Ipomopsis congesta			+																	
Lupinus hillii																				
Lupinus sp.																				
Machaeranthera canescens			+																	
Penstemon sp.				+						+		+					+		1	
Phlox sp.			3	1			1								1	3				
Physaria chambersii											+									
Senecio multilobatus							+			+						+				
Sphaeralcea coccinea																				
Streptanthus cordatus																				
Unknown Scrophulariaceae								+				+					+			
TOTAL	+	3	1	1	0	0	4	2	0	1	+	1	+	+	2	4	+	1	+	1
Grasses																				
Agropyron smithii				+				+				+	2	1						
Aristida purpurea							1								1		1			
Bouteloua gracilis	4	2			3		7	2		2		1	1	1	+			5	5	1
Hordeum jubatum																				
Koeleria cristata							3									+				
Oryzopsis hymenoides	1	1	+		+	1			2		+	1	1	2			1			
Sitanion hystrix	+		1							+	+		2	2	+	1	2	+	1	
Stipa comata									1							2		1	2	
Stipa lettermani										2					+					
TOTAL	+	5	4	+	3	1	11	2	3	4	+	2	6	6	1	3	4	6	8	1
TOTAL VEGETATIVE COVER	38	71	48	74	40	52	29	34	60	57	46	34	66	58	32	24	61	40	34	24
BARE GROUND	22	35	23	20	10	20	16	25	30	35	7	50	18	12	2	2	15	30	6	5
GRAVEL AND ROCK	38	20	22	15	75	40	50	20	15	25	38	10	18	30	60	69	3	15	50	60
LITTER	42	25	35	65	15	20	5	15	20	15	40	10	45	40	6	5	40	25	10	10
TOTAL	102	80	80	100	100	80	71	60	65	75	85	70	81	82	68	76	58	70	66	75

TABLE E3a (Cont.)

Species	Releve Number												Avg. Cover(%)	Frequency (%)
	21	22	23	24	25	26	27	28	29	30				
Trees														
Juniperus osteosperma	34	12	8	3	13	20	28	27	20	20			19.0	100.0
Pinus monophylla	28	41	22	3	4	5	8	+					10.6	87.0
TOTAL	62	53	30	6	17	25	36	27	20	20			29.6	—
Shrubs and Succulents														
Artemisia frigida	1	2	6	3	3		2	+	6	+			0.0	3.0
Artemisia nova	6			1				18	4	25			5.6	80.0
Artemisia tridentata	+							+	+	1			3.3	50.0
Chrysothamnus viscidiflorus													0.2	30.0
Coryphantha vivipara													0.0	10.0
Cowania mexicana													0.0	3.0
Eriogonum microthecum								+					0.1	23.0
Gutierrezia sarothrae	1			3	1	+	1	+		1			0.7	63.0
Leptodactylon pungens													0.1	13.0
Leptodactylon sp.	+					+			+	+			0.3	37.0
Lygodesmia spinosa													0.0	3.0
Opuntia polycantha	+	+			+			+					0.0	37.0
Opuntia sp.													0.0	3.0
Penstemon sp.													0.0	13.0
Phlox sp.													0.0	3.0
Purshia tridentata			2	5	3	1							0.4	13.0
TOTAL	8	2	8	12	7	1	3	18	10	27			10.6	—
Forbs														
Arabis sp.				+									+	7.0
Astragalus lentiginosus													+	3.0
Astragalus sp.		+	+		+	+							+	40.0
Chaenactis douglasii				+				+	+				+	37.0
Cordylanthus parviflorus	+												+	3.0
Comandra umbellata													+	3.0
Cryptantha sp.	+								+				+	17.0
Erigeron sp.										+			+	10.0
Eriogonum umbellatum				+	+	+	+	+					0.1	23.0
Eriogonum sp.	+	+			+	+	+	+	+				0.2	47.0

TABLE E-3a (Cont.)

Species	21	22	23	24	25	26	27	28	29	30	Avg. Cover (%)	Frequency (%)
Forbs (Cont.)												
<i>Gilia</i> sp.									+		+	3
<i>Haplopappus spinulosus</i>											+	3
<i>Ipomopsis congesta</i>							+				+	13
<i>Lupinus hillii</i>				+							+	10
<i>Lupinus</i> sp.					+						+	3
<i>Macraeranthera canescens</i>								+			0.1	13
<i>Penstemon</i> spp.	+		+			+	+	+	+		+	50
<i>Phlox</i> sp.											0.3	17
<i>Physaria chambersii</i>	+										+	10
<i>Senecio multilobatus</i>							+				+	13
<i>Sphaeralcea coccinea</i>										+	+	3
<i>Streptanthus cordatus</i>							+	+	+		+	17
Unknown Scrophulariaceae											+	10
TOTAL	+		+	+	+	+	+	+	+	+	0.7	90
Grasses												
<i>Agropyron smithii</i>										+	0.1	20
<i>Aristida purpurea</i>											0.1	10
<i>Bouteloua gracilis</i>	3		1						3	+	1.4	57
<i>Hordeum jubatum</i>								10			0.3	3
<i>Koeleria cristata</i>											0.1	7
<i>Oryzopsis hymenoides</i>	+			1				1	2	1	0.5	53
<i>Sitanion hystrix</i>	2		+	1	+		+	2			0.5	57
<i>Stipa oomata</i>			1				1	+	2		0.3	27
<i>Stipa lettermani</i>						+	1				0.1	13
TOTAL	5	0	+	4	+	+	+	2	13	7	3.4	97
TOTAL VEGETATIVE COVER	75	55	38	22	24	28	45	61	39	48	45.2	—
BARE GROUND	12	18	6	30	35	68	30	20	35	20	21.9	—
GRAVEL AND ROCK	12	42	54	42	26	20	15	1	18	3	30.2	—
LITTER	45	32	12	6	15	10	45	45	30	35	25.4	—
TOTAL	69	92	72	78	76	98	90	66	83	58	77.5	—



TABLE E-3b

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE BERYL PREFERRED OBTS  
 -- BLACK SAGERUSH ASSOCIATION --

Species	1	2	3	4	5	6	7	8	9	10	11	Avg. Cover(%)	Frequency (%)
<u>Trees</u>													
Juniperus osteosperma				5					8			1.2	18
Pinus monophylla				6								0.5	9
TOTAL	0	0	0	0	11	0	0	0	0	8	0	1.7	18
<u>Shrubs and Succulents</u>													
Artemisia nova	4	38	21	45	9	16	10	12	12	25	20	19.3	100
Artemisia tridentata	4	3	18		1	6		1	2	1		3.3	73
Chrysothamnus viscidiflorus	6	+						1	1		2	0.9	45
Eriogonum microthecum	1			+		1			+	+		0.2	45
Gutierrezia sarothrae	2	2	+		1	+		2	1		2	0.9	73
Lygodesmia spinosa						+		+				+	18
Opuntia polycantha				+				+				+	18
Phlox sp.					+							+	9
TOTAL	17	43	39	45	11	23	10	16	16	26	24	24.5	--
<u>Forbs</u>													
Astragalus sp.		+		+		+	+		+		+	+	55
Chaenactis douglasii			+		+	+	+			+	+	+	45
Cryptantha sp.		+			+	+	+	2		+	+	0.2	45
Erigeron sp.			1		+	+	+			+		0.1	36
Eriogonum umbellatum					+						+	+	18
Eriogonum sp.				+			+		+			+	18
Ipomopsis congesta							+					0.1	27
Lupinus sp.	1	+										0.1	27
Machaeranthera canescens		1		+						+		+	9
Orobancha sp.						+						+	45
Penstemon sp.			+	+			+		+	+		0.5	27
Phlox sp.		2				+			3			+	18
Senecio multilobatus	+	+										+	36
Sphaeralcea coccinea	+		+				+				+	+	9
Stephanomeria exigua	1	3	1	+	+	+	+	2	3	1	+	1.1	--

TABLE E-3b (Cont.)

Species	Releve Number											Avg. Cover(%)	Frequency (%)
	1	2	3	4	5	6	7	8	9	10	11		
Grasses													
Agropyron smithii	1	1	+			1	1		+		3	0.7	64
Aristida purpurea					1			+		+		0.1	27
Bouteloua gracilis	1		12			3	15		1	5		3.4	55
Koeleria cristata					1							0.1	9
Oryzopsis hymenoides	1	2		+		1		2	+			0.5	55
Sitanion hystrix			1		1			2		2	1	0.6	45
Sporobolus sp.								+				+	9
Stipa comata	3			3	4				+	1		1.0	45
TOTAL	6	3	13	3	7	5	16	4	1	8	4	6.4	—
TOTAL VEGETATIVE COVER													
	24	52	54	48	29	29	26	26	25	46	28	35.2	—
BARE GROUND													
	6	30	19	25	—	20	43	20	48	5	47	23.9	—
GRAVEL AND ROCK													
	65	4	13	15	—	41	18	45	15	39	8	23.9	—
LITTER													
	5	14	10	8	—	10	10	9	10	10	15	9.2	—
TOTAL	76	48	42	48	—	71	71	74	73	54	70	57.0	—

TABLE E-3c

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE BERYL PREFERRED OBTS  
 -- BIG SAGEBRUSH ASSOCIATION --

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Releve Number																				
<u>Trees</u>																				
Juniperus osteosperma				4		8		4			3									
Pinus monophylla																				
TOTAL	0	0	0	4	0	8	0	4	0	0	3	0	0	0	0	0	0	0	0	0
<u>Shrubs and Succulents</u>																				
Artemisia nova				5	7	7						5								
Artemisia tridentata	3	1		12	8	7	10	13	8	32	22	8	16	8	7	10	9	8	5	25
Atriplex canescens									3											
Ceratoides lanata									+											
Chrysothamnus nauseosus									2											
Chrysothamnus viscidiflorus	18	8	13		5	1	6		1			1	1	4	5	7	+	4		
Eriogonum microthecum							+					+				1				
Gutierrezia sarothrae			1	+	+							3				1			5	+
Leptodactylon pungens				+	1	+				+										
Leptodactylon sp.							+													+
Lygodesmia spinosa						+														
Opuntia polycantha	+	2	+		+						+	+	1		1	1	+	1	+	
Opuntia sp.																				
Phlox sp.								1				1								
TOTAL	21	11	14	17	21	15	16	14	14	32	23	17	18	12	13	20	9	13	10	25
<u>Forbs</u>																				
Astragalus lentiginosus														+						
Astragalus sp.			1			+	+	+				+				+	+			
Chaenactis douglasii						+	+	+				+							+	
Comandra umbellata																				
Cryptantha sp.	+	+	1			+	+	+			+	1		1	+	+	+	+		+
Erigeron sp.						+	+	+		+	+	+	+	+	+	+	+	+		
Eriogonum umbellatum																				
Eriogonum sp.								+				+								+

TABLE E-3c (Cont.)

Species	Releve Number																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Forbs (Cont.)																				
<i>Ipomopsis congesta</i>	+		+			+	+					+		+		+		+		
<i>Lappula</i> sp.																	+		+	
<i>Leucelene ericoides</i>	+																			
<i>Machaeranthera canescens</i>						+	+													
<i>Oenothera</i> sp.																+				
<i>Penstemon</i> sp.				1		+				+									+	+
<i>Phlox</i> sp.												2								
<i>Senecio multilobatus</i>							+					+								
<i>Sphaeralcea coccinea</i>											+	+	+				+	+	+	
<i>Sphaeralcea grossulariifolia</i>	+																			
<i>Stephanomeria exigua</i>		+										1								
<i>Stephanomeria</i> sp.		+					1													
TOTAL	+	+	2	1	0	+	1	+	0	+	+	4	+	+	1	+	+	+	+	+
Grasses																				
<i>Agropyron cristatum</i>										+										
<i>Agropyron smithii</i>			2		+		1		9		1		2	5	3	3		8		
<i>Aristida purpurea</i>		+									6		1	1	1			+		1
<i>Bouteloua gracilis</i>				2	4	2	1	6					1	4	3	4	15		6	
<i>Oryzopsis hymenoides</i>	2	3		2	1	1		2	+	4	1	2	3	4	3		1	1	1	1
<i>Sitanion hystrix</i>	2		1	+	+	+	1	1	1	1	1	1	2	3	5	2	3	2		
<i>Stipa comata</i>	2		4		+		1	1		+		2		5	1	1				
<i>Stipa lettermani</i>																				3
TOTAL	6	5	7	4	5	3	4	10	10	5	9	5	8	22	16	10	19	11	8	4
TOTAL VEGETATIVE COVER	29	16	23	28	26	26	21	29	24	41	35	30	28	34	30	30	30	25	18	30
BARE GROUND	24	30	23	8	8	12	5	7	45	14	10	10	28	12	28	15	12	12	43	35
GRAVEL AND ROCK	36	45	39	52	52	38	65	45	3	28	35	50	32	42	30	25	43	41	15	20
LITTER	11	9	15	12	14	24	9	19	28	17	20	10	12	12	12	30	15	22	22	13
TOTAL	71	84	77	72	74	74	79	71	76	59	65	70	72	66	70	70	70	75	80	68

TABLE E-3c (Cont.)

Species	Releve Number												Avg. Cover(%)	Frequency (%)
	21	22	23	24	25	26	27	28	29	30	31			
<u>Trees</u>														
Juniperus osteosperma							22						1.2	13
Pinus monophylla													0.1	3
TOTAL	0	0	0	0	0	0	22	0	0	0	0		1.3	16
<u>Shrubs and Succulents</u>														
Artemisia nova													0.8	13
Artemisia tridentata	15	30	25	13	23	22	8	6	10	12	18		12.7	97
Atriplex canescens													0.1	3
Ceratoides lanata													+	3
Chrysothamnus nauseosus													0.1	3
Chrysothamnus viscidiflorus		2					1	1			3		2.6	58
Eriogonum microthecum										+			+	13
Gutierrezia sarothrae				2	1	1	1	+	+	1	5		0.6	45
Leptodactylon pungens					+	+	+			2			0.1	23
Leptodactylon sp.					1								+	10
Lygodesmia spinosa													+	3
Opuntia polycantha	+	4	+	1	2								0.4	55
Opuntia sp.													+	0
Phlox sp.													0.1	6
TOTAL	15	36	26	16	26	22	10	7	12	13	26		17.5	—
<u>Forbs</u>														
Astragalus lentiginosus													+	3
Astragalus sp.								+					+	26
Chaenactis douglasii								+	+				+	19
Comandra umbellata													+	3
Cryptantha sp.	+		+	+	+	+	+			+			+	52
Erigeron sp.	+		+	+	+	+			1	+			+	52
Eriogonum umbellatum								+					+	6
Eriogonum sp.							+				+		+	13

TABLE E-3c (Cont.)

Species	Releve Number												Avg. Cover(%)	Frequency (%)
	21	22	23	24	25	26	27	28	29	30	31			
Forbs (Cont.)														
<i>Ipomopsis congesta</i>				+									+	29
<i>Lappula</i> sp.													+	6
<i>Leucelene ericoides</i>								+					+	10
<i>Machaeranthera canescens</i>													+	6
<i>Oenothera</i> sp.													+	3
<i>Penstemon</i> sp.									+	+			+	23
<i>Phlox</i> sp.			3								1		0.2	10
<i>Senecio multilobatus</i>													+	10
<i>Sphaeralcea coccinea</i>	+				+			1					+	32
<i>Sphaeralcea grossulariifolia</i>													+	3
<i>Stephanomeria exigua</i>													+	6
<i>Stephanomeria</i> sp.													+	3
TOTAL	+	0	3	+	+	+	+	1	1	+	1		0.5	90
Grasses														
<i>Agropyron cristatum</i>							4	3	3	3	2		0.5	19
<i>Agropyron smithii</i>				1	1	1		2			1		1.3	50
<i>Aristida purpurea</i>			2										0.2	19
<i>Bouteloua gracilis</i>				1		2	2	7	9	15	4		3.0	65
<i>Oryzopsis hymenoides</i>	2	+	+			3					+		1.2	71
<i>Sitanion hystrix</i>	1	1							1				0.9	65
<i>Stipa comata</i>				1	1						+		0.6	42
<i>Stipa lettermani</i>			3										0.2	6
TOTAL	3	1	5	3	2	6	6	12	13	18	7		7.9	100
TOTAL VEGETATIVE COVER	18	37	37	19	28	28	40	20	27	32	35		28.2	---
BARE GROUND	35	17	37	30	15	24	23	50	8	36	30		22.1	---
GRAVEL AND ROCK	35	11	10	31	27	36	25	15	52	20	20		32.8	---
LITTER	12	35	15	20	30	12	12	23	13	10	15		16.5	---
TOTAL	82	63	62	81	72	72	60	88	73	66	65		71.8	---

TABLE E-3d

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE BERYL PREFERRED OBITS  
 — BIG SAGEBRUSH/CRESTED WHEATGRASS ASSOCIATION —

Species	Releve Number											Avg. Cover(%)	Frequency (%)
	1	2	3	4	5	6	7	8	9	10	11		
<u>Trees</u>													
Juniperus osteosperma		5	5									0.9	18
Pinus monophylla								+				+	9
TOTAL	0	5	5	0	0	0	0	0	0	0	0	0.9	27
<u>Shrubs and Succulents</u>													
Artemisia nova					1							0.1	9
Artemisia tridentata	8	6	8	8	8	4	6	5	7	15	14	8.1	100
Ceratoides lanata				+							1	0.1	18
Chrysothamnus viscidiflorus	2			1	2	+					3	0.7	45
Eriogonum microthecum		1	1									0.2	18
Gutierrezia sarothrae	1	2	1									0.4	27
Leptodactylon pungens	+	+	2		+							0.2	36
Lygodesmia spinosa		1				1			2			0.2	9
Opuntia polycantha									+		+	0.2	36
TOTAL	11	10	12	9	11	5	6	5	9	15	18	10.1	—
<u>Forbs</u>													
Astragalus lentiginosus								+	+			+	18
Astragalus sp.					1							0.1	9
Cryptantha sp.								+		+		+	18
Erigeron sp.						+		+				+	18
Eriogonum umbellatum			1									0.1	9
Eriogonum sp.		+		1	+					+		0.1	36
Leucelene ericoides	+											+	9
Lupinus hillii								1	+			0.1	18
Machaeranthera canescens					+							+	9
Sphaeralcea coccinea	+	+	+	+	+	+				+		+	64
Stephanomeria exigua	+	+	+	+	+	1	0	1	+	+	0	+	27
TOTAL	+	+	1	1	+	1	0	1	+	+	0	0.4	82

TABLE E-3d (Cont.)

Species	1	2	3	4	5	6	7	8	9	10	11	Avg. Cover (%)	Frequency (%)
<u>Grasses</u>													
<i>Agropyron cristatum</i>	6	10	7	2	7	10	11	6	5	10	10	7.6	100
<i>Agropyron smithii</i>		1		1		+	1			+		0.3	45
<i>Aristida purpurea</i>		1	2				2					0.5	27
<i>Bouteloua gracilis</i>	1	5	5	4	4			8	10	1		3.5	73
<i>Oryzopsis hymenoides</i>	1					+						0.1	18
<i>Sitanion hystrix</i>	+											+	9
<i>Stipa comata</i>			1	7	1	1						0.9	36
TOTAL	8	17	15	14	12	11	14	14	15	11	10	12.8	—
TOTAL VEGETATIVE COVER	19	32	33	24	23	17	20	20	24	26	30	24.4	—
BARE GROUND	25	28	17	25	30	30	30	30	25	62	42	31.3	—
GRAVEL AND ROCK	35	30	35	25	36	45	35	10	5	5	13	24.9	—
LITTER	21	10	15	26	10	8	15	40	46	7	15	19.4	—
TOTAL	81	68	67	76	76	83	80	80	76	74	70	75.5	—



TABLE E-3e  
PERCENT COVER AND FREQUENCY OF VEGETATION ON THE BEVEL PREFERRED OBTS  
-- WASH ASSOCIATION --

Species	Releve Number									Avg. Cover(%)	Frequency (%)	
	1	2	3	4	5	6	7	8	9			
Shrubs and Succulents												
<i>Artemisia frigida</i>			+			1				0.1	22	
<i>Artemisia tridentata</i>	34	25	25	15	6	40	40	32	35	28.0	100	
<i>Chrysothamnus nauseosus</i>					6					0.7	11	
<i>Chrysothamnus viscidiflorus</i>	+	7			+	1	1			1.0	55	
<i>Eriogonum microthecum</i>	+									+	11	
<i>Gutierrezia sarothrae</i>	+	5	+		1	2			+	0.9	66	
<i>Opuntia polycantha</i>	1	+	+				+	1	5	0.8	66	
TOTAL	35	37	25	15	13	44	41	33	40	31.4	---	
Forbs												
<i>Cryptantha</i> sp.					+			+		+	22	
<i>Descurainia</i> sp.							+			+	11	
<i>Erigeron</i> sp.			+						+	+	22	
<i>Eriogonum umbellatum</i>			+							+	11	
<i>Lupinus hillii</i>	+									+	11	
<i>Penstemon</i> sp.		+	+							+	22	
<i>Physaria chambersii</i>	+									+	11	
<i>Senecio multilobatus</i>	+									+	11	
<i>Sphaeralcea coccinea</i>						+	+		+	+	22	
TOTAL	+	+	+	0	+	+	+	+	+	+	88	
Grasses												
<i>Agropyron cristatum</i>			4	5	4					1.4	33	
<i>Agropyron smithii</i>				+		1	2			0.3	33	
<i>Bouteloua gracilis</i>	2		12		+	+	5			2.1	55	
<i>Oryzopsis hymenoides</i>	+	1				2				0.3	33	
<i>Sitanion hystrix</i>	+	1				2	2	2	2	1.0	66	
<i>Stipa comata</i>							+			+	11	
TOTAL	2	2	16	5	4	5	9	2	2	5.2	100	
TOTAL VEGETATIVE COVER	39	39	41	20	17	49	54	35	42	37.3	---	
BARE GROUND												
GRAVEL AND ROCK	45	50	36	70	41	33	26	8	10	35.4	---	
LITTER	7	0	15	2	12	5	10	32	18	11.2	---	
TOTAL	9	10	8	8	30	13	10	25	30	15.9	---	
TOTAL	61	60	59	80	83	51	46	65	58	62.6	---	

TABLE E-4a

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DYN SEGMENT I-D  
— PINYON-JUNIPER ASSOCIATION —

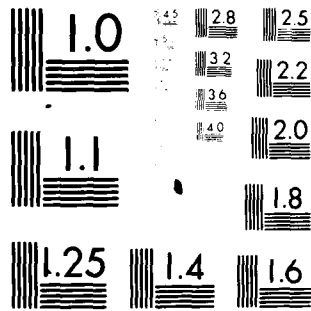
Species	(Road Mile) 3-6 (Releve #)			6-9						9-12								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Trees																		
Juniperus osteosperma	8	24	24	5	25	19	8	21	4	14	18	7	12	35	7	24	25	4
Pinus edulis		33	45	3	25				1		25	12	10	5	15	40		
Pinus monophylla	8	57	69	8	50	24	15	22	5	14	43	19	12	45	12	24	40	44
TOTAL																		
Shrubs and Succulents																		
Artemisia nova	5	2	10			+	2	7			6	3			7	12	10	7
Artemisia tridentata			4					4	+			7						
Artemisia sp.																		
Chrysothamnus viscidiflorus		+								2	+	5		+		12		
Chrysothamnus sp.																		
Cowania mexicana	5																	
Coryphantha vivipara																		
Ephedra nevadensis		+																
Ephedra viridis								+						+				
Eriogonum microthecum					+	+		+		+	+		1	+		2		
Gutierrezia sarothrae	1			1	1				+	+	+	1	2	3	+			
Leptodactylon pungens				+		+	+			1				+				
Opuntia polycantha				+		2	+				+	1	1		+	+	+	
Purshia tridentata						+	+			1								
TOTAL	11	2	0	23	1	2	2	7	12	4	6	14	6	4	8	24	12	7
Forbs																		
Arabis sp.																		
Astragalus calycosus													+					
Astragalus kentrophyta																		
Astragalus lentiginosus						+					+							
Astragalus sp.																		
Chaenactis douglasii																		
Cordylanthus parviflorus							+				+							
Cryptantha sp.	+	+	+					+	+	+	+	+		+		+		1

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TABLE E-4a (Cont.)

Species	(Road Mile) 3-6			6-9					9-12					15-18					
	(Releve #)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Forbs (Cont.)																			
<u>Eriogonum caespitosum</u>													5						
Eriogonum cernuum							3			+						+			
Eriogonum sp.											+								
Euphorbia sp.				+						+			+						
Fraseria albomarginata				+					+		1					+		+	
Gilia sp.												+							
Haplopappus acaulis	1																		+
Ipomopsis congesta																			
Lepidium montanum																			
Lotus utahensis									+							+			
Lupinus sp.								+			1								
Machaeranthera canescens																			
Machaeranthera grindelioides															+				
Oenothera sp.		+																	+
Penstemon sp.		+						+			+				+				
Dalea searisi																			
Petrorhiza pumila		+				1		1						4		+			
Phlox sp.														1					
Physaria chambersii														+					
Physaria sp.									+										
Poa sp.										1									
Senecio multilobatus																			
Sphaeralcea grossulariifolia										+									
Sphaeralcea sp.													+						
Streptanthus cordatus															+				
Streptanthus sp.																			
TOTAL	1	+	+	+	0	1	3	1	0	1	2	+	+	10	+	1	0	0	+
Grasses																			
<u>Agropyron smithii</u>																			
Bouteloua gracilis												+							
Bromus tectorum	1	8			5						2		3				1		
Hilaria jamesii						+				+				2	+		2		
Munroa squarrosa																			
Oryzopsis hymenoides	1	+	+	+	+	+				1	+		+	1		1			+

TABLE E-4a (Cont.)

Species	(Road Mile)	3-6			6-9										9-12					
	(Releve #)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Grasses (Cont.)																				
Poa sandbergii			+																	
Sitanion hystrix			1		+										+				+	
Sitanion sp.											+									
Sporobolus cryptandrus					+															
TOTAL		2	9	+	5	+	+	0	1	1	2	+	4	2	+	1	3	0	+	
TOTAL VEGETATIVE COVER		21	69	69	39	52	29	18	30	18	22	51	37	30	49	22	51	52	51	
BARE GROUND		13	5	25	15	10	41	18	15	1	2	20	40	16	10	56	28	6	7	
GRAVEL AND ROCK		60	35	10	50	50	20	55	50	74	69	30	18	50	40	9	15	31	33	
LITTER		5	64	60	15	30	7	6	3	4	4	55	2	4	40	8	6	11	6	
TOTAL		78	104	100	80	90	68	79	68	79	75	105	60	70	90	73	49	48	46	

**TABLE E-4a (Cont.)**

[illegible]

**TABLE E-4a (Cont.)**

[illegible]



TABLE E-4a (Cont.)

Species	(Road Mile) (Releve #)						9-12 (Cont.)						12-15						15-18					
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36						
Grasses (Cont.)																								
Poa sandbergii																								
Poa sp.																								
Sitanion hystrix																								
Sitanion sp.																								
Sporobolus cryptandrus																								
TOTAL	+	0	1	6	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
TOTAL VEGETATIVE COVER	51	42	36	28	21	40	18	14	62	56	52	80	41	48	43	49	30	25						
BARE GROUND	7	18	13	43	41	40	67	3	25	12	3	3	38	17	37	29	25	30						
GRAVEL AND ROCK	37	30	45	20	25	10	5	73	40	18	45	28	10	25	7	5	50	35						
LITTER	3	8	4	8	8	7	3	6	30	68	60	70	47	52	47	60	25	5						
TOTAL	47	56	62	71	74	57	75	82	95	98	108	101	95	94	91	94	100	70						

TABLE E-4a (Cont.)

Species	(Road Mile)				15-18 (Cont.)				18-end							Avg. Cover(%)	Frequency (%)
	(Releve #)	37	38	39	40	41	42	43	44	45	46						
<u>Trees</u>																	
Juniperus osteosperma		9	7	33	40	32	25	20	15	23	36		18.6	98			
Pinus edulis	15												8.8	46			
Pinus monophylla		24	8	7			15			25	2		4.1	37			
TOTAL			24	15	40	40	32	40	20	15	48	38	31.6				
<u>Shrubs and Succulents</u>																	
Artemisia nova		6	12		3	3		7	2	2	12		3.0	64			
Artemisia tridentata	+					5			+				1.0	22			
Artemisia sp.													0.1	2			
Chrysothamnus viscidiflorus					3			+	+				0.7	26			
Chrysothamnus sp.													0.0	2			
Cowania mexicana	2						4						0.5	15			
Coryphantha vivipara								+					0.0	7			
Ephedra nevadensis													0.0	7			
Ephedra viridis			+	+									0.1	17			
Eriogonum microthecum			+		+	+			+		1		0.0	43			
Gutierrezia sarothrae	+					+			1	+			0.3	48			
Leptodactylon pungens			+	+		1	2		1	+	+		0.2	41			
Opuntia polycantha	1	1											0.2	50			
Purshia tridentata		3	10	12		7	10	4	9	2	2	13	4.6	20			
TOTAL		3	10										6.5				
<u>Forbs</u>																	
Arabis sp.													+	2			
Astragalus calycosus													+	2			
Astragalus kentrophyta													+	2			
Astragalus lentiginosus							+						+	4			
Astragalus sp.													+	7			
Chaenactis douglasii									+				+	4			
Cordylanthus parviflorus	+												+	9			
Cryptantha sp.	+					+			+				+	28			

TABLE E-4a (Cont.)

Species	(Road Mile) (Releve #)	15-18 (Cont.) 37 38 39	40	41	42	18-end 43 44 45 46	Avg. Cover(%)	Frequency (#)
<b>Forbs (Cont.)</b>								
Eriogonum caespitosum				+			0.2	7
Eriogonum cernuum							0.2	17
Eriogonum sp.							+	15
Euphorbia sp.							0.0	13
Fraseria albomarginata							+	2
Gilia sp.							+	4
Haplopappus acaulis					+		+	4
Ipomopsis congesta					+		+	15
Lepidium montanum							+	4
Lotus utahensis		+					+	9
Lupinus sp.							0.0	17
Machaeranthera canescens							+	4
Machaeranthera grindelioides							+	2
Oenothera sp.							+	2
Dalia searisle						+	+	
Penstemon sp.	1		+	+		+	0.1	61
Petroradia pumila	1		+	+		3	0.2	20
Phlox sp.					+		0.0	15
Physaria chambersii	+		+				+	17
Physaria sp.						+	+	4
Senecio multilobatus	+					+	+	7
Sphaeralcea grossulariifolia					+		+	2
Sphaeralcea sp.							+	2
Streptanthus cordatus	+						+	9
Streptanthus sp.							+	4
<b>TOTAL</b>	3	+	0	+	+	0	+	0.8
<b>Grasses</b>								
Agropyron smithii						+	+	2
Bouteloua gracilis			2				0.0	7
Bromus tectorum						4	0.4	11
Hilaria jamesii							0.4	26
Munroa squarrosa							+	2
Oryzopsis hymenoides		1	+	+	+	3	0.3	61

TABLE E-4a (Cont.)

Species	(Road Mile) (Releve #)				15-18 (Cont.)				18-end				Avg. Cover(%)	Frequency (%)
	37	38	39	40	41	42	43	44	45	46				
Grasses (Cont.)														
Poa sandbergii													+	2
Poa sp.													0.0	2
Sitanion hystrix				+	2		2	3	+				0.2	28
Sitanion sp.						+							+	11
Sporobolus cryptandrus													+	2
TOTAL	0	1	+	4	2	+	2	10	1	1			1.3	---
TOTAL VEGETATIVE COVER	30	26	52	51	45	44	32	27	51	55			40.4	---
BARE GROUND	26	55	10	14	29	16	20	40	19	15			22.2	---
GRAVEL AND ROCK	47	12	30	30	18	35	55	35	25	25			33.0	---
LITTER	3	6	7	45	40	3	22	30	4	4			22.0	---
TOTAL	76	73	47	89	87	54	97	105	48	44			77.2	---

TABLE E-4b

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT I-D  
 --- BLACK SAGEBRUSH ASSOCIATION ---

Species	(Road Mile) (Releve #)			1	2	3	4	5	6	Avg. Cover(%)	Frequency (%)
<u>Trees</u>											
Juniperus osteosperma				8	9	2	2			3.2	50
TOTAL	0	0	0	8	9	2	2			3.2	---
<u>Shrubs</u>											
Artemisia nova	22	8	9	17	20	18				15.7	100
Artemisia tridentata		4								0.7	17
Chrysothamnus Greenei	4	1	1							1.0	50
Chrysothamnus viscidiflorus				1	3					0.7	33
Ephedra viridis				2						0.3	17
Grayia spinosa					1					0.2	17
Gutierrezia sarothrae				5	1	+				1.0	50
Leptodactylon pungens						+				0.2	17
TOTAL	26	13	10	25	25	18				19.5	---
<u>Forbs</u>											
Astragalus calycosus					1					0.2	17
Astragalus lentiginosus		+	+							+	33
Cryptantha sp.				+	+					+	33
Petroradia pumila						1				0.2	17
Phlox sp.				1						0.2	17
Streptanthella longirostris	+	+	+	1	1	1				+	17
TOTAL	+	+	+	1	1	1				0.5	---
<u>Grasses</u>											
Bromus tectorum				2						0.3	17
Oryzopsis hymenoides					3					0.7	67
Poa sandbergii		+	1	3						0.5	17
Sitanion hystrix				+						0.2	33
Stipa comata				+						+	17
TOTAL	0	+	1	5	3	1				1.7	---
TOTAL VEGETATIVE COVER	26	13	11	39	38	22				24.8	---
BARE GROUND	25	15	20	1	23	16				16.7	---
GRAVEL AND ROCK	43	66	66	56	35	54				53.3	---
LITTER	6	6	3	3	3	8				4.8	---
TOTAL	74	87	89	60	61	78				74.8	---



TABLE E-4c (Cont.)

Species	(Road Mile) (Releve #)			0-3			3-6			6-9							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Forbs (Cont.)																	
Lupinus sp.																	
Machaeranthera canescens														+			
Paronychia sp.																	
Penstemon sp.																	
Phlox sp.														2			
Senecio multilobatus										+							
Sphaeralcea grossulariifolia														+			
Sphaeralcea sp.																	
Streptanthella longirostris								+									
Townsendia incana	+																
TOTAL	+	0	0	+	1	+	0	+	+	+	0	0	+	3	+	0	0
Grasses																	
Agropyron cristatum																	
Agropyron smithii																	
Bouteloua gracilis																	
Bromus tectorum	4	3	10	5	1		+							1	+	3	3
Hilaria jamesii	4	1	+									3			2	3	3
Oryzopsis hymenoides				1	1		3		+		+		+				
Sitanion hystrix	+				+	2											
Sitanion sp.				1													
Sporobolus cryptandrus	1												1				
Stipa comata	9	5	10	7	2	2	3	0	+	0	+	3	1	1	2	0	6
TOTAL	23	17	22	23	29	19	70	29	21	24	32	33	30	54	16	39	32
TOTAL VEGETATIVE COVER																	
BARE GROUND	46	77	65	64	15	20	16	24	18	58	10	37	8	4	60	55	9
GRAVEL AND ROCK	22	5	11	11	53	62	8	35	46	16	57	25	60	37	20	2	54
LITTER	9	1	1	1	2	3	6	12	15	2	1	4	2	2	2	4	5
TOTAL	77	83	77	76	70	85	30	71	79	76	68	66	70	43	82	61	68

TABLE E-4c (Cont.)

Species	(Road Mile)		9-12			12-15			15-18			18-end 30	Avg. Cover(%)	Frequency (%)		
	(Relieve #)		18	19	20	21	22	23	24	25	26				27	28
<u>Trees</u>																
Juniperus osteosperma									6						0.4	7
Pinus edulis															0.1	3
Pinus monophylla	0	0	0	0	0	0	0	0	6	0	0	0	4	0	0.1	3
TOTAL										0	0	0	4	0	0.7	---
<u>Shrubs</u>																
Artemisia nova										9					0.3	3
Artemisia tridentata	1	21	30	35	15	15	15	35		12	28	5	5	35	18.8	100
Atriplex canescens															0.3	3
Ceratoides lanata															0.4	20
Chrysothamnus greenei															1.3	23
Chrysothamnus nauseosus			4												0.1	3
Chrysothamnus viscidiflorus	+	1			5	3	2			2	2				1.8	57
Chrysothamnus sp.															0.2	3
Ephedra nevadensis															0.0	3
Ephedra viridis															0.1	3
Eriogonum microthecum															+	3
Gutierrezia sarothrae	15	3	1	+	+	3				+	1	1	+	2	1.5	53
Leptodactylon pungens						+									+	3
Opuntia polycantha	+							+						1	0.0	23
Paronychia sp.										1					0.0	3
TOTAL	16	25	35	35	20	21	37			24	31	6	5	35	25.0	---
<u>Forbs</u>																
Arabis sp.															+	3
Astragalus calycosus															+	3
Astragalus lentiginosus															+	3
Chaenactis douglasii													+		+	3
Cryptantha sp.								+							0.0	13
Descurainia pinnata															0.0	7
Descurainia sp.															+	3
Euphorbia sp.															+	3
Leucelene ericoides										1					0.0	7



TABLE E-4c (Cont.)

Species	(Road Mile)		9-12			12-15			15-18			18-end	Avg.	Frequency			
	(Releve #)		18	19	20	21	22	23	24	25	26	27	28	29	30	Cover(%)	(%)
Forbs (Cont.)																	
Lupinus sp.							1								+	0.0	7
Machaeranthera canescens													+				7
Penstemon sp.				+			7	1	+	+						0.3	17
Phlox sp.							2								+	0.1	10
Senecio multilobatus								+								+	3
Sphaeralcea grossulariifolia																+	3
Sphaeralcea sp.											+					+	10
Streptanthella longirostris																+	3
Townsendia incana																+	3
TOTAL			0	0	+	0	10	1	+	1	1	+	+	0	+	0.6	---
Grasses																	
Agropyron cristatum															5	0.2	3
Agropyron smithii										4	1			2		0.2	10
Bouteloua gracilis										1	3					0.1	7
Bromus tectorum						1	2	1							+	1.1	50
Hilaria jamesii						2			2				2			0.7	40
Oryzopsis hymenoides										+	3	1				0.4	47
Sitanion hystrix						1	+		+		3	5	3	1		0.5	30
Sitanion sp.																0.0	7
Sporobolus cryptandrus												+				+	3
Stipa comata																0.1	10
TOTAL			+	4	2	3		+	+	2	5	9	8	5	3	3.2	---
TOTAL VEGETATIVE COVER			16	29	37	38	30	22	45	32	40	14	14	38	17	29.5	---
BARE GROUND			5	4	55	24	45	4	22	35	20	25	15	44	35	30.6	---
GRAVEL AND ROCK			74	64	2	33	20	70	15	22	25	30	62	0	35	32.5	---
LITTER			5	3	6	4	3	2	18	11	15	31	9	18	12	7.0	---
TOTAL			84	71	63	61	68	76	55	68	60	86	86	62	82	70.1	---

TABLE E-4d

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT I-D  
 — RABBITBRUSH ASSOCIATION —

Species		(Road Mile) 0-3 (Releve #)															3-6		Avg. Frequency Cover(%) (#)	
Shrubs																				
Artemisia tridentata				1														0.5	20	
Ceratoides lanata	2	2	2	+	6	17	8	15	3	3	13	5	+	10	8			6.1	93	
Chrysothamnus Greenei	8		6	12	5									30	28			5.9	40	
Chrysothamnus viscidiflorus						13	24	26	11	23	36	9	11					10.2	53	
Gutierrezia sarothrae	+			+														+	13	
TOTAL	8	2	8	13	11	30	39	41	14	26	49	14	11	40	36			22.8	---	
Forbs																				
Astragalus sp.			+						+				+					+	20	
Descurainia pinnata														5	+			0.3	13	
Descurainia sp.								+										+	7	
Machaeranthera canescens									2		+	2						0.3	20	
Machaeranthera sp.	+																	+	7	
Sphaeralcea coccinea						+												+	7	
Sphaeralcea grossulariifolia											+		+					+	13	
TOTAL	0	0	+	0	+	0	0	+	2	0	+	0	2	5	+			0.6	---	
Grasses																				
Agropyron cristatum					1									3				0.3	13	
Bromus tectorum	3	8	+	3	2	25	7	17	14	9	12	7		3	+			7.3	93	
Hilaria jamesii	6	24				2		3										2.3	27	
Oryzopsis hymenoides	+	+	7	1	2	2	2	1	12	8	7	1	4	4	1			3.5	100	
Sitanion hystrix			1	+	1													0.1	20	
Sitanion sp.													1					0.1	7	
Sporobolus cryptandrus	+				1													0.1	13	
Stipa comata									8									0.5	7	
TOTAL	9	32	8	4	7	29	9	21	34	17	19	8	8	7	1			14.2	---	
TOTAL VEGETATIVE COVER																				
	17	34	16	17	18	59	48	62	50	43	68	22	21	52	37			37.6	---	
BARE GROUND																				
	25	39	15	50	22	25	30	18	17	30	24	69	69	30	53			34.4	---	
GRAVEL AND ROCK																				
	44	15	66	30	55	12	20	16	30	25	5	8	8	18	8			24.0	---	
LITTER																				
	14	12	3	3	5	4	2	4	3	2	2	1	1	2	1			3.9	---	
TOTAL	83	66	84	83	82	41	52	38	50	57	31	78	78	50	62			62.3	---	

TABLE E-4e

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DIN SEGMENT I-D  
 — WINTERFAT ASSOCIATION —

Species	(Road Mile) (Releve #)		Avg. Cover(%)	Frequency (%)
	1	2		
<u>Shrubs</u>				
Ceratoides lanata	48	40	44.0	100.0
TOTAL	48	40	44.0	---
<u>Forbs</u>				
Descurainia pinnata	1	+	0.5	50.0
Descurainia sp.		+	+	50.0
Lappula sp.			+	50.0
TOTAL	1	+	0.5	---
<u>Grasses</u>				
Bromus tectorum	1		0.5	50.0
TOTAL	1	0	0.5	---
TOTAL VEGETATIVE COVER				
	50	40	45.0	---
BARE GROUND				
GRAVEL AND ROCK	48	51	49.5	---
LITTER	1	1	1.0	---
	1	6	3.5	---
TOTAL	50	58	54.0	---

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT I-D  
-- WASH ASSOCIATIONS --

Species	(Road Mile) (Releve #)																18-end	Avg.	Frequency																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	0-3	3-6	6-9	9-12	12-15	15-18	18-end	Avg.	Frequency																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Juniperus osteosperma																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

**TABLE E-4f (Cont.)**

Species	(Road Mile) (Releve #)	0-3	3-6	6-9	9-12	12-15	15-18	18-end	Avg. Cover(%)	Frequency (%)							
Forbs (Cont.)																	
Penstemon palmeri					+	1			0.1	14							
Penstemon sp.					+				0.2	21							
Physaria chambersii				+		2	1		+	21							
Salsola iberica	+					+	+		+	7							
Sphaeralcea ambigua	+								+	7							
Sphaeralcea grossulariifolia	+								+	7							
TOTAL		1	0	1	0	2	1	5	2	5	1	0	0	1.3	---		
Grasses																	
Agropyron cristatum	+													+	7		
Agropyron smithii								1				6	+	0.5	21		
Aristida purpurea											1			0.1	7		
Bromus tectorum	2			1		2	1	1	+					0.5	43		
Hilaria jamesii			1								1			0.1	14		
Oryzopsis hymenoides	+											+		+	14		
Poa sp.	+													+	7		
Sitanion hystrix			+									+	1	0.1	21		
TOTAL		2	0	1	1	0	0	2	1	1	0	2	6	1	1.3	---	
TOTAL VEGETATIVE COVER		10	13	16	16	29	70	18	37	40	19	35	31	31	56	30.1	---
BARE GROUND		79	35	4	23	12	20	30	53	40	53	25	34	60	22	35.0	---
GRAVEL AND ROCK		6	46	73	51	51	0	47	6	16	20	30	5	3	10	26.0	---
LITTER		1	6	7	10	8	10	3	4	4	8	10	30	6	12	8.5	---
TOTAL		86	87	84	84	71	30	80	63	60	81	65	69	69	44	69.5	---

TABLE E-5a

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DYN SEGMENT G -- JOCKEY SPRING  
-- PINYON-JUNIPER ASSOCIATION --

Species	(Road Mile) (Releve #)		0-3		3-6																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
<u>Trees</u>																					
<i>Juniperus osteosperma</i>	5	13	15	18	13	4	12	12	14	28	13	3	25	5	15	28	30	25	34	40	
<i>Pinus edulis</i>				5	23							9	7	9	35		10	8			
<i>Pinus monophylla</i>	5	13	15	18	18	27	47	12	19	39	13	12	32	14	50	28	40	33	34	40	
TOTAL																					
<u>Shrubs and Succulents</u>																					
<i>Artemisia nova</i>	+	3	4	3	10		2	13	3		3	2	2	14				16	3		
<i>Artemisia tridentata</i>													1								
<i>Artemisia</i> sp.														1		2		3			
<i>Chrysothamnus Greenei</i>																					
<i>Chrysothamnus viscidiflorus</i>	3		1	2							2	1						2	2		
<i>Chrysothamnus</i> sp.	18					2		+		1											
<i>Cowania mexicana</i>			+					1							1						
<i>Ephedra nevadensis</i>			+					+													
<i>Ephedra viridis</i>			+																		
<i>Eriogonum microthecum</i>	2	1	+	+			+				1	1	+		+	+	+	+	+	+	
<i>Gutierrezia sarothrae</i>	11	1	+	1							1	1	+		1	1	1	+	2	+	
<i>Leptodactylon pungens</i>					+											+		1	+	+	
<i>Opuntia polycantha</i>	+		+			+					+	+									
<i>Purshia tridentata</i>									+	4											
TOTAL	31	8	5	6	10	2	2	14	3	5	7	5	3	15	2	3	2	3	20	6	
<u>Forbs</u>																					
<i>Astragalus calycosus</i>											1	+	+			+	+				
<i>Astragalus lentiginosus</i>	+		+																+		
<i>Astragalus</i> sp.														+							
<i>Brickellia oblongifolia</i>																					
<i>Caulanthus crassicaulis</i>																+	+				
<i>Chaenactis douglasii</i>											+	+	+								
<i>Chaenactis</i> sp.			+																		
<i>Cordylanthus parviflorus</i>																			+		
<i>Cryptantha</i> sp.	+	+	+	+	+		+				1	+	1						+	+	

TABLE E-5a (Cont.)

Species	(Road Mile) (Releve #)		3-6																			
	0-3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Forbs (Cont.)																						
Erigeron sp.				+			+													+		
Eriogonum shockleyi				+	1	+						+									5	
Eriogonum sp.	1		+																			
Euphorbia sp.		+										2		+			+	+	+		+	
Fraseria albomarginata										+												
Haplopappus acaulis																						
Ipomopsis congesta				+								+					+					
Lepidium montanum																						
Leucelene ericoides																						
Lithospermum incisum																				+		
Lupinus sp.													+									
Lygodesmia spinosa																						
Machaeranthera canescens														+								
Oenothera sp.																						
Penstemon sp.		+		+		+	+	1	+	1	1	+	2	2		+	+	1		+	+	
Dalia searisle										+		2	1			+	+	1	+			
Phlox sp.				+			+						+	+								
Physaria chambersii			+																			
Physaria sp.							+			+			+	+			+	+			+	
Streptanthus cordatus	+	+			+	+	+	+	+			+	+	+			+	+				
Unknown forb							+															
TOTAL	+	+	+	1	+	+	+	1	+	1	1	6	2	4	+	+	+	2	+	+	5	
Grasses																						
Aristida purpurea			+	1														+				
Bouteloua gracilis															+					+		
Bromus tectorum															+		5	+			4	
Hilaria jamesii	7			1				+	1			3			1							
Munroa squarrosa		+																				
Oryzopsis hymenoides	5		+	1	+				2			3					1	+		+	1	
Poa sp.				+																		
Sitanion hystrix	+														1					1	1	
Sitanion sp.						+										+						

TABLE E-5a (Cont.)

Species	(Road Mile)		3-6																			
	(Releve #)	0-3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Grasses (Cont.)																						
Stipa comata		+														+		2				
TOTAL	7	5	+		3	+	0	+	3	0	0	3	3	0	2	+	8	+	+	1	6	
TOTAL VEGETATIVE COVER	44	26	20	28	28	29	50	29	23	45	29	22	39	31	52	39	44	36	55	58		
BARE GROUND	25	25	3	56	6	7	15	50	22	37	21	7	30	20	5	6	3	40	10	12		
GRAVEL AND ROCK	25	54	64	8	52	52	25	11	50	10	45	67	22	60	34	44	45	15	45	20		
LITTER	3	3	7	5	10	9	8	8	4	8	4	1	4	15	50	35	42	39	42	50		
TOTAL	53	82	74	69	68	68	48	69	76	55	70	75	56	95	89	85	90	94	97	82		



TABLE E-5a (Cont.)

Species	(Road Mile) (Releve #)	21	22	23	24	25	26	27	Avg. Cover(%)	Frequency (%)
<u>Trees</u>										
Juniperus osteosperma		11	41	8	25	22	28	12	18.5	100
Pinus edulis		3		3	10	15	34	52	8.3	52
Pinus monophylla			4						2.0	15
TOTAL		14	45	11	35	37	62	64	28.8	---
<u>Shrubs and Succulents</u>										
Artemisia nova			1				4	2	3.2	63
Artemisia tridentata		+		5	12				0.7	15
Artemisia sp.						8			0.5	11
Chrysothamnus Greenei									0.0	4
Chrysothamnus viscidiflorus				1					0.4	22
Chrysothamnus sp.									0.8	15
Cowania mexicana					3			3	0.1	15
Ephedra nevadensis									0.1	11
Ephedra viridis									+	15
Eriogonum microthecum									0.2	48
Gutierrezia sarothrae					1	1	+		0.8	59
Leptodactylon pungens				+				+	+	19
Opuntia polycantha		+		1	+				0.1	44
Purshia tridentata									0.2	7
TOTAL		+	1	8	16	8	4	5	7.2	---
<u>Forbs</u>										
Astragalus calycosus									0.0	19
Astragalus lentiginosus									+	7
Astragalus sp.									+	30
Brickellia oblongifolia				+					+	4
Caulanthus crassicaulis									+	7
Chaenactis douglasii				+					+	15
Chaenactis sp.					+				+	11
Cordylanthus parviflorus									+	4
Cryptantha sp.				+					0.1	44

TABLE E-5a (Cont.)

Species	(Road Mile) (Releve #)	21	22	23	24	25	26	27	Avg. Cover(%)	Frequency (#)
<b>Forbs (Cont.)</b>										
<i>Eriogonum</i> sp.									+	4
<i>Eriogonum shockleyi</i>									+	7
<i>Eriogonum</i> sp.									0.3	26
<i>Euphorbia</i> sp.				1				+	0.0	11
<i>Fraseria albomarginata</i>									0.1	22
<i>Haplopappus acaulis</i>						+			+	4
<i>Ipomopsis congesta</i>									+	22
<i>Lepidium montanum</i>									+	4
<i>Leucelene ericoides</i>									0.0	4
<i>Lithospermum incisum</i>									+	4
<i>Lotus utahensis</i>									+	4
<i>Lupinus</i> sp.									+	7
<i>Lygodesmia spinosa</i>									0.0	4
<i>Machaeranthera canescens</i>									+	4
<i>Oenothera</i> sp.									+	4
<i>Penstemon</i> sp.									0.4	74
<i>Dalea searisi</i>								+	0.1	7
<i>Phlox</i> sp.									0.1	30
<i>Physaria chambersii</i>									+	19
<i>Physaria</i> sp.									+	4
<i>Streptanthus cordatus</i>									+	44
TOTAL		+	1	3	1	+	+	+	1.0	---
<b>Grasses</b>										
<i>Aristida purpurea</i>									0.0	11
<i>Bouteloua gracilis</i>				1					0.0	7
<i>Bromus tectorum</i>									+	11
<i>Hilaria jamesii</i>				1					0.9	37
<i>Munroa squarrosa</i>									+	4
<i>Oryzopsis hymenoides</i>									0.5	37
<i>Poa</i> sp.									+	4
<i>Sitanion hystrix</i>									0.1	19
<i>Sitanion</i> sp.						+		+	+	11

TABLE E-5a (Cont.)

Species	(Road Mile) (Releve #)							6-end							Avg. Cover(%)	Frequency (%)
	21	22	23	24	25	26	27									
Grasses (Cont.)																
<u>Stipa comata</u>													0.1	11		
TOTAL	0	0	2	+	+	0	0						1.6	---		
TOTAL VEGETATIVE COVER	14	47	24	52	45	66	69						38.7	---		
BARE GROUND	10	14	30	30	3	8	2						18.4	---		
GRAVEL AND ROCK	68	35	40	15	46	25	29						37.3	---		
LITTER	6	3	5	40	5	72	68						20.2	---		
TOTAL	84	52	75	85	54	105	99						75.9	---		

TABLE E-5b

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT G — JOCKEY SPRING  
— BLACK SAGEBRUSH ASSOCIATION —

Species	(Road Mile) (Releve #)	0-3	1	2	3	4	5	6-end	Avg. Cover(%)	Frequency (%)
<u>Trees</u>										
Juniperus osteosperma		4	4		0	0	0		0.8	20
TOTAL		0	4		0	0	0		0.8	—
<u>Shrubs and Succulents</u>										
Artemisia nova		12	8	5	5	15	23		9.6	80
Artemisia sp.		6		3					3.0	20
Chrysothamnus Greenei									1.8	40
Chrysothamnus viscidiflorus		2	3						0.6	20
Ephedra nevadensis		2	3						1.0	40
Eriogonum microthecum		1	1	8			+		+	20
Gutierrezia sarothrae									2.0	80
Paronychia sp.		+							+	20
TOTAL		21	15	16	15	15	23		18.0	—
<u>Forbs</u>										
Astragalus sp.		+		+					+	40
Cryptantha sp.		+							+	20
Eriogonum shockleyi		+							+	20
Euphorbia glyptosperma				+					+	20
Euphorbia sp.		+							+	20
Leucelene ericoides		+							+	20
Machaeranthera canescens						+			+	20
Phlox sp.						+			+	20
TOTAL		+	0	+	+	+	0		+	60
<u>Grasses</u>										
Bromus tectorum		1	+	+					0.2	60
Hilaria jamesii		+	2						0.4	40
Oryzopsis hymenoides		1			+				0.2	60

TABLE E-5b (Cont.)

Species	(Road Mile)		0-3		6-end			Avg. Cover(%)	Frequency (%)
	(Releve #)		1	2	3	4	5		
<u>Grasses (Cont.)</u>									
<u>Sitanion hystrix</u>				1			+	0.2	40
Sitanion sp.			1					0.2	20
Stipa comata			1					0.2	20
TOTAL			4	3	+	+	+	1.4	---
TOTAL VEGETATIVE COVER									
			25	22	16	15	23	20.2	---
BARE GROUND									
GRAVEL AND ROCK			9	14	15	75	8	24.2	---
LITTER			61	58	64	4	64	50.2	---
TOTAL			2	6	5	5	5	4.6	---
			72	78	84	84	77	79.0	---

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT G --- JOCKEY SPRING  
--- BIG SAGEBRUSH ASSOCIATION ---

[illegible]

TABLE E-5c (Cont.)

Species	(Road Mile) (Releve #)										6-end	Avg. Cover(%)	Frequency (%)
	1	2	3	4	5	6	7	8	9	10	11		
Grasses (Cont.)													
Sitanion sp.	+						+					0.1	18
Sporobolus cryptandrus									+			+	9
Stipa comata	8	9	0	3	8	7	1	13	5	7	12	0.2	27
TOTAL											1	6.6	---
TOTAL VEGETATIVE COVER	26	39	36	39	41	25	32	42	17	42	22	32.8	---
BARE GROUND	3	43	60	3	2	37	53	43	18	55	69	35.1	---
GRAVEL AND ROCK	67	25	1	54	53	35	12	12	40	0	2	27.4	---
LITTER	2	3	3	3	4	3	2	3	25	3	6	5.2	---
TOTAL	72	71	64	60	59	75	67	58	83	58	77	67.6	---

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT G -- JOCKEY SPRING  
-- RABBITBRUSH ASSOCIATION --

Species	(Road Mile) (Releve #)	0-3						3-6		Avg. Cover(%)	Frequency (%)
		1	2	3	4	5	6	7	8		
<u>Trees</u>											
Juniperus osteosperma	0	0	0	0	0	0	0	9	6	1.9	25
TOTAL								0	0	1.9	---
<u>Shrubs and Succulents</u>											
Artemisia nova	5	5		5	3	12		4	7	3.8	63
Artemisia tridentata			3							1.8	38
Atriplex canescens									1	0.1	13
Ceratoides lanata		3				+				0.4	25
Chrysothamnus Greenei	18			6	4					3.5	38
Chrysothamnus viscidiflorus		15	20			12		10	20	9.6	63
Eriogonum microthecum		1								0.1	13
Ephedra nevadensis	+	1		1						0.3	38
Gutierrezia sarothrae		1						4	2	0.9	38
Opuntia erinacea	+							1		0.1	25
TOTAL	23	26	23	12	7	24		19	30	20.5	---
<u>Forbs</u>											
Astragalus calycosus		+						+		+	25
Cryptantha sp.	+				+			+	+	+	50
Descurainia pinnata			1							0.1	13
Eriogonum shockleyi	1									0.1	13
Euphorbia sp.	+			+					1	0.1	38
Lepidium sp.	+									+	13
Penstemon sp.								+	+	+	25
Sphaeralcea sp.			+			+		+	+	+	50
TOTAL	1	+	1	+	+	+		+	1	0.4	---
<u>Grasses</u>											
Aristida purpurea	+				+					+	25
Bouteloua gracilis								2		0.3	13
Bromus tectorum	1	10	7			1			1	2.5	63



TABLE E-5d (Cont.)

Species	(Road Mile) (Releve #)		0-3					3-6		Avg. Cover(%)	Frequency (%)
	1	2	3	4	5	6	7	8			
Grasses (Cont.)											
Hilaria jamesii	1			2	+			5	2	1.1	63
Munroa squarrosa			+							+	13
Oryzopsis hymenoides	+	1	+			+				0.1	50
Sitanion sp.	+									+	13
Stipa comata	1			2	5					1.0	38
TOTAL	3	11	7	4	5	1		7	3	5.1	---
TOTAL VEGETATIVE COVER											
	27	37	31	16	12	25		35	40	27.9	---
BARE GROUND											
	64	30	11	35	9	4		25	50	28.5	---
GRAVEL AND ROCK											
	4	30	55	39	64	65		35	6	37.3	---
LITTER											
	1	3	3	10	5	5		3	4	4.3	---
TOTAL	69	63	69	84	78	74		63	60	70.0	---

TABLE E-5e

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT G -- JOCKEY SPRING

-- WASH ASSOCIATIONS --

Species	(Road Mile) (Releve #)	1	2	3	4	5	6	3-6	6-end 7 8	Avg. Cover(%)	Frequency (%)
<b>Trees</b>											
<i>Juniperus osteosperma</i>		25				5				3.8	25
<i>Pinus edulis</i>									6	0.8	13
TOTAL	0	25	0	0	0	5	0	0	6	4.5	---
<b>Shrubs</b>											
<i>Artemisia tridentata</i>	5	1	8	28		6	14		4	1	100
<i>Atriplex canescens</i>						1	22				25
<i>Chrysothamnus Greenei</i>		+	5			1	1		+		63
<i>Chrysothamnus nauseosus</i>	7		3	6		8			60	7	75
<i>Gutierrezia sarothrae</i>		1				2			1	3	50
TOTAL	12	2	16	34		18	37		65	11	24.4
<b>Forbs</b>											
<i>Descurainia pinnata</i>	+							+			13
<i>Euphorbia glyptosperma</i>				+							25
<i>Euphorbia</i> sp.	+	+									25
<i>Lepidium</i> sp.			+	+							25
<i>Lupinus</i> sp.						1			1	0.3	25
<i>Mirabilis</i> sp.				+						+	13
<i>Oenothera</i> sp.				+						+	13
<i>Penstemon palmeri</i>			1							0.1	13
<i>Verbena bracteata</i>									+	+	13
TOTAL	+	1	1	+		1	+		0	1	0.5
<b>Grasses</b>											
<i>Agropyron smithii</i>									+		13
<i>Bouteloua gracilis</i>										0.1	13
<i>Bromus tectorum</i>	10	2	1	4		+	2		1	2.5	88
<i>Hilaria jamesii</i>		2								0.3	13
<i>Oryzopsis hymenoides</i>		1								0.1	13
<i>Sitanion hystrix</i>			+	+		1	+			0.1	50
<i>Sporobolus cryptandrus</i>		+				1				0.1	25
TOTAL	10	6	1	4		2	2		0	1	3.3

TABLE E-5e (Cont.)

Species	(Road Mile) (Releve #)		0-3			3-6		6-end		Avg. Cover(%)	Frequency (%)
	1	2	3	4	5	6	7	8			
TOTAL VEGETATIVE COVER	22	35	18	38	26	39	65	19	32.7	---	
BARE GROUND	67	15	66	15	29	27	25	25	33.6	---	
GRAVEL AND ROCK	5	60	4	31	15	4	5	35	19.9	---	
LITTER	5	25	12	16	30	30	5	21	18.0	---	
TOTAL	77	100	82	62	74	61	35	81	71.5	---	

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT F-D  
 -- PINYON-JUNIPER ASSOCIATION --

Species		(Road Mile) (Releve #)						3-6						6-9						9-12					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19					
Trees																									
Juniperus osteosperma	10	50	17	3	7	3	47	22	24	35	0	10	20	50	16	39	18	35	28						
Pinus edulis								8																	
Pinus monophylla	10	50	17	4	2	2	4	4	3	10	25	4	2	2	28	4									
TOTAL																									
Shrubs and Succulents																									
Artemisia nova						5			15	18						2	26	1	6						
Artemisia tridentata	2		12		4	4		18								4	2		15						
Chrysothamnus viscidiflorus				1	1	1																			
Chrysothamnus sp.																									
Cowania mexicana				2	1																				
Coryphantha vivipara	+																								
Echinocereus triglochidiatus							+																		
Ephedra viridis			1		1				1			1													
Eriogonum microthecum				+																					
Gutierrezia sarothrae	5	1		1	1	3			1			1	+		+				4						
Leptodactylon pungens												+	+		+					+					
Opuntia polycantha		+		2	1			1	1	+		1	1		+										
Purshia tridentata									3			2				3									
TOTAL	7	1	13	6	9	13	+	19	18	3	18	5	1	4	2	5	26	16	10						
Forbs																									
Astragalus calycosus					+	+						+													
Astragalus sp.				+											+										
Chaenactis douglasii					+	+										+									
Comandra umbellata																	+								
Cordylanthus parviflorus					+							+													
Cryptantha sp.	+		+	+	1	+			+			+					+		+	+					
Descurainia pinnata		+																							
Eriogonum cernuum		+														+									
Eriogonum ovalifolium								+																	

TABLE E-6a (Cont.)

Species	(Road Mile)		(Releve #)		3-6						6-9						9-12		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
<b>Forbs (Cont.)</b>																			
Eriogonum sp.				+						+	+			+			1		+
Euphorbia fendleri																			
Euphorbia sp.																			
Ipomopsis congesta																			
Lepidium densiflorum						+													
Leucelene ericoides								+											
Lotus utahensis													+						
Penstemon sp.			1	+				+									+		
Dalea searlsiae				1															
Phlox sp.				+	+														
Physaria chambersii				+	+														
Sphaeralcea sp.						+													
Streptanthus cordatus	+	+	1	1	1	+	0	+	0	+	+	+	+	+	+	+	1	+	+
TOTAL																			
<b>Grasses</b>																			
Aristida purpurea	2	1				1												1	2
Bouteloua gracilis	1					2						1							+
Bromus tectorum						+													
Hilaria jamesii	5	1						+							+				
Oryzopsis hymenoides	1		2					+				1				+		+	
Sitanion hystrix	1	3				1	+	2						1	+			3	
Sitanion sp.	+								1									1	
TOTAL	9	3	5	0	0	4	+	2	1	0	0	2	0	1	+	+		2	5
TOTAL VEGETATIVE COVER	28	56	36	14	19	22	49	57	49	48	44	21	24	57	46	48	45	53	44
BARE GROUND	4	5	17	37	30	3	14		18	37	42	5	24	5	32	20	29	6	8
GRAVEL AND ROCK	63	55	45	38	38	43	49	28	18	5	11	67	5	15	10	23	20	32	41
LITTER	3	40	4	5	3	2	45	35	42	53	28	3	45	70	8	6	6	43	35
TOTAL	70	100	66	80	78	75	97	77	78	95	81	75	74	90	50	49	55	81	84

**TABLE E-6a (Cont.)**

[illegible]

TABLE E-6a (Cont.)

Species	(Road Mile) (Releve #)	12-15 19	20	21	22	23	24	25	Avg. Cover(%)	Frequency (%)
Forbs (Cont.)										
Eriogonum sp.									0.0	15
Euphorbia fendleri									+	8
Euphorbia sp.									+	4
Ipomopsis congesta									+	4
Lepidium densiflorum									+	4
Leucelene ericoides									+	4
Lotus utahensis									+	12
Penstemon sp.		+	1				+	+	0.1	31
Dalea searlsiae					+				+	4
Phlox sp.									+	12
Physaria chambersii									+	12
Sphaeralcea sp.									+	4
Streptanthus cordatus			+						+	31
TOTAL		+	1	+	0	+	+	+	0.2	---
Grasses										
Aristida purpurea		2							0.2	15
Bouteloua gracilis				1		12			0.8	27
Bromus tectorum									+	8
Hilaria jamesii		7							0.5	19
Oryzopsis hymenoides		3	1	+	+	1	+	1	0.4	58
Sitanion hystrix		+			1	+		+	0.5	46
Sitanion sp.			+						0.1	19
TOTAL		12	1	1	1	13	+	1	2.4	---
TOTAL VEGETATIVE COVER		40	38	42	45	36	24	52	39.9	---
BARE GROUND										
GRAVEL AND ROCK		20	50	19	27	22	38	23	22.0	---
LITTER		35	6	3	22	35	30	20	29.1	---
		4	4	35	48	6	6	4	22.4	---
TOTAL		59	60	57	97	63	74	47	73.5	---

TABLE E-6b

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DYN SEGMENT F-D  
 -- BLACK SAGEBRUSH ASSOCIATION --

Species	(Road Mile) (Releve #)	0-3 1	2 2	3-6 3	4 4	5 5	6 6	7 7	8 8	Avg. Cover(%)	Frequency (%)
<b>Trees</b>											
<i>Pinus monophylla</i>		0	0	+	0	0	0	0	0	+	13
<b>TOTAL</b>										+	---
<b>Shrubs and Succulents</b>											
<i>Artemisia nova</i>		8	16	12	16	12	10	5	5	10.5	100
<i>Artemisia tridentata</i>				2			16	4		2.8	38
<i>Chrysothamnus viscidiflorus</i>					3			5	5	1.6	38
<i>Chrysothamnus</i> sp.		+	3							0.4	25
<i>Eriogonum microthecum</i>					2					0.3	13
<i>Gutierrezia sarothrae</i>				3	9	2	3	3	2	2.8	75
<i>Leptodactylon pungens</i>				+				1		0.1	25
<i>Opuntia polycantha</i>		+								+	13
<i>Paronychia</i> sp.						2				0.3	13
<b>TOTAL</b>		8	19	17	30	16	29	18	12	18.6	---
<b>Forbs</b>											
<i>Astragalus lentiginosus</i>		+								+	13
<i>Comandra umbellata</i>				+						+	13
<i>Cryptantha</i> sp.				+				+		+	3
<i>Ipomopsis congesta</i>					+					+	3
<i>Leucelene ericoides</i>				+	+	1				0.1	38
<i>Penstemon</i> sp.				+				1		0.1	13
<i>Phlox</i> sp.				+		+				+	25
<i>Sphaeralcea coccinea</i>								+		+	13
<i>Sphaeralcea</i> sp.		+	0	+	+	1	0	2	+	+	13
<b>TOTAL</b>									+	0.4	---



TABLE E-6b (Cont.)

Species	(Road Mile) (Releve #)		0-3		3-6		9-12		12-15		15-18		18-21		Avg. Cover %	Frequency (%)
<u>Grasses</u>																
Agropyron spicatum							7								0.9	13
Aristida purpurea													1		0.1	13
Bromus tectorum	+	2	+				4		2						1.0	63
Hilaria jamesii							2		12						1.8	25
Koeleria cristata					3										0.4	13
Oryzopsis hymenoides	+	1	+	+			1		+		1				0.4	88
Poa sandbergii					+										+	13
Sitanion hystrix		1			2	2	2		1						1.0	63
Sitanion sp.	+														+	13
Sporobolus cryptandrus	+														+	13
Stipa comata					+										+	13
TOTAL															5.5	---
TOTAL VEGETATIVE COVER	8	23	22	34	36	44	21	13	25.1							---
<u>BARE GROUND</u>																
GRAVEL AND ROCK	85	15	13	25	5	15	30	26	26.7							---
LITTER	3	60	55	36	51	39	44	60	43.5							---
TOTAL	1	2	5	5	8	2	4	1	3.5							---
TOTAL	89	77	73	66	64	56	78	87	73.7							---

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DIN SEGMENT F-D  
-- BIG SAGEBRUSH ASSOCIATION --

Species	(Road Mile) (Releve #)	0-3	3-6	6-9	9-12	12-15
		1	2 3 4 5	6 7	8 9 10 11	12 13 14 15 16
<u>Trees</u>						
Juniperus osteosperma	2				1	4
Pinus edulis	+					
Pinus monophylla			2	1		
TOTAL	0	2 0 2 0	1 0	1 0 0 0	0 0 0 0	4 0
<u>Shrubs and Succulents</u>						
Artemisia nova					1	
Artemisia tridentata	3	19 17 18 14	21 25	5 25 16 45	18 17 24 7 10	
Ceratoides lanata	2					
Chrysothamnus Greenei						
Chrysothamnus nauseosus						
Chrysothamnus viscidiflorus	1				+	
Chrysothamnus sp.						1
Cowania mexicana						
Echinocereus triglochidiatus					1	
Ephedra nevadensis		+				
Ephedra viridis			1			
Eriogonum microthecum						
Gutierrezia sarothrae			1	1	2 25 16 45	3
Leptodactylon pungens					+	+
Opuntia erinacea						
Opuntia sp.		4				
TOTAL	6	19 21 19 15	21 26	9 25 16 45	19 22 24 8 13	
<u>Forbs</u>						
Astragalus sp.						
Chaenactis douglasii					+	
Cryptantha sp.					+	+
Descurainia pinnata					+	1
Erigeron pumilus			+			
Erigeron sp.						
Eriogonum cernuum						
Eriogonum shockleyi						

TABLE E-6c (Cont.)

Species	(Road Mile) (Relieve #)	0-3	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>Forbs (Cont.)</b>																	
Eriogonum sp.	1																
Lepidium densiflorum	1																
Leucelene ericoides								+					+				+
Lupinus sp.																	
Lygodesmia spinosa										1				1		+	
Machaeranthera canescens																	
Penstemon sp.																	
Phlox sp.														+		+	
Senecio multilobatus														+			
Sphaeralcea coccinea									+					+			
Sphaeralcea grossulariifolia																	
Sphaeralcea sp.														+			
Townsendia sp.																	
<b>TOTAL</b>		2	0	0	+	0	+	0	+	1	+	0	1	1	+	1	+
<b>Grasses</b>																	
Agropyron cristatum								10									
Agropyron smithii								3						8		2	1
Aristida purpurea				+						+						3	4
Bouteloua gracilis									2	5	2		2	3		4	
Bromus tectorum	10		2	+				4	2					1			
Hilaria jamesii			5	+	2	+		3			1					11	
Koeleria cristata									+								
Oryzopsis hymenoides						2	2		2				7	1	1		
Poa sandbergii									2								
Sitanion hystrix				1	2	4			1		3						+
Sitanion sp.			2							+			1	3			
Sporobolus sp.																	
Stipa comata									2								
Stipa sp.																	
<b>TOTAL</b>		10	9	1	6	6		10	10	11	5	6	0	10	16	16	5
<b>TOTAL VEGETATIVE COVER</b>	18	30	22	27	27	27		32	36	21	31	26	45	29	39	40	18

TABLE E-6c (Cont.)

Species	(Road Mile) (Releve #)	0-3			3-6			6-9			9-12			12-15				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
BARE GROUND	40		7	10	10	5	59	7	14	5	12	41	60	44	5	50	41	
GRAVEL AND ROCK	59		59	60	52	64	3	43	55	61	58	3	7	8	52	26	41	
LITTER	3		4	8	11	4	6	14	10	2	4	11	2	5	2	5	2	
TOTAL	102		70	78	73	73	68	64	79	68	74	55	69	57	59	81	84	

TABLE E-6c (Cont.)

[illegible]

TABLE E-6c (Cont.)

Species	(Road Mile) (Releve #)	15-18											Avg. Cover(%)	Frequency (%)
		17	18	19	20	21	22	23	24	25	26	27		
Forbs (Cont.)														
Eriogonum sp.						+							+	7
Lepidium densiflorum													+	4
Leucelene ericoides	+												+	14
Lupinus sp.						+							+	7
Lygodesmia spinosa													0.1	11
Machaeranthera canescens				+									+	7
Penstemon sp.					+							+	+	11
Phlox sp.				2									0.1	11
Senecio multilobatus													+	4
Sphaeralcea coccinea					+								+	11
Sphaeralcea grossulariifolia				+								+	+	11
Sphaeralcea sp.							+						+	4
Townsendia sp.						+							+	4
TOTAL		+	0	4	+	+	+	+	+	0	0	0	+	0.4
Grasses														
Agropyron cristatum		16			20		13		4		18		2.9	21
Agropyron smithii				+									0.4	14
Aristida purpurea													0.1	14
Bouteloua gracilis										1			0.8	29
Bromus tectorum													0.8	25
Hilaria jamesii	7					1					+		1.1	39
Koeleria macrantha													0	4
Oryzopsis hymenoides						1				+	3	5	0.9	36
Poa sandbergii													0.1	4
Sitanion hystrix						2				1	+	1	0.5	36
Sitanion sp.	1												0.3	21
Sporobolus sp.													0.0	4
Stipa comata						1					+	1	0.1	14
Stipa sp.				14									0.5	4
TOTAL		8	16	14	20	5	13	0	4	2	18	4	8.4	---
TOTAL VEGETATIVE COVER		24	30	35	21	28	19	13	38	16	34	44	25	28.1

TABLE E-6c (Cont.)

Species	(Road Mile) (Releve #)	15-18															Avg. Cover(%)	Frequency (%)
		17	18	19	20	21	22	23	24	25	26	27	28					
BARE GROUND	65	49	65	39	20	40	43	15	51	48	33	63	33.6	---				
GRAVEL AND ROCK	7	14	6	15	37	37	40	42	15	8	20	7	32.1	---				
LITTER	3	7	3	23	15	3	4	5	18	10	2	3	6.8	---				
TOTAL	75	70	74	77	72	80	87	62	84	66	55	73	72.5	---				

TABLE E-6d

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DYN SEGMENT F-D  
 -- RABBITEBRUSH ASSOCIATION --

Species	(Road Mile) (Releve #)		0-3		Avg. Cover(%)	Frequency (%)
	1	2	1	2		
<u>Shrubs and Succulents</u>						
<u>Ceratoides lanata</u>	+	8			4.0	100
Chrysothamnus sp.	22	26			24.0	100
TOTAL	22	34			28.0	---
<u>Forbs</u>						
Astragalus sp.	+	+			+	100
TOTAL	+	+			+	---
<u>Grasses</u>						
<u>Bromus tectorum</u>	9	3			6.0	100
Hilaria jamesii	+	12			6.0	100
Oryzopsis hymenoides	+	+			+	100
Sporobolus cryptandrus	2				1.0	50
TOTAL	11	15			13.0	---
TOTAL VEGETATIVE COVER						
	33	49			41.0	---
<u>BARE GROUND</u>						
GRAVEL AND ROCK	48	23			35.5	---
LITTER	15	25			20.0	---
TOTAL	2	2			2.0	---
	65	50			57.5	---



TABLE E-6e

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT F-D  
 — PERENNIAL GRASSLAND —

Species	(Road Mile) (Releve #)		0-3				3-6		Avg. Cover(%)	Frequency (%)
	1	2	3	4	5	5				
Shrubs and Succulents										
<u>Artemisia tridentata</u>						5			1.0	20
Ceratoides lanata		2		+					0.4	40
Chrysothamnus viscidiflorus				8					1.6	20
Chrysothamnus sp.	1	5	9						3.0	60
Gutierrezia sarothrae	1			+					0.2	40
TOTAL	2	7	9	8		5			6.2	---
Forbs										
<u>Astragalus sp.</u>						+			+	20
Eriogonum cernuum						+			+	20
Lepidium densiflorum									+	20
TOTAL	0	0	+	0		+			+	---
Grasses										
<u>Bromus tectorum</u>	3	2	12	6					4.6	80
Hilaria jamesii	15	18	35	14		10			18.4	100
Oryzopsis hymenoides		1				3			0.8	40
Sitanion hystrix				+					+	20
Sitanion sp.						+			+	20
Sporobolus cryptandrus	+	2	12	2					3.2	80
TOTAL	18	23	59	22		13			27.0	---
TOTAL VEGETATIVE COVER	20	30	68	30		18			33.2	---
BARE GROUND										
GRAVEL AND ROCK	71	10	20	15		12			25.6	---
LITTER	4	55	10	47		66			36.4	---
	5	5	2	8		3			4.6	---
TOTAL	80	70	32	70		81			66.6	---

TABLE E-6f

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE DIN SEGMENT F-D  
 -- WASH ASSOCIATION --

Species	(Road Mile) (Releve #)	1	2	3	4	5	6	7	8	9-12	Avg. Cover (%)	Frequency (%)
<b>Shrubs and Succulents</b>												
<i>Artemisia tridentata</i>		2	40	4	12	28	68	25	29		26.0	100
<i>Chrysothamnus nauseosus</i>		25	20	8	2	42	13	25	1		17.0	100
<i>Gutierrezia sarothrae</i>				5							0.6	13
<i>Leptodactylon pungens</i>					+						+	13
TOTAL		27	60	17	14	70	81	50	30		43.6	---
<b>Forbs</b>												
<i>Argemone munita</i>		+									+	13
<i>Astragalus</i> sp.				+							+	13
<i>Descurainia pinnata</i>						2					0.3	13
<i>Euphorbia</i> sp.				+							+	13
<i>Ipomopsis congesta</i>		+									+	13
<i>Lupinus</i> sp.				2							0.3	13
<i>Nicotiana attenuata</i>		+									+	13
<i>Oenothera</i> sp.		+									+	13
<i>Sphaeralcea</i> sp.					+						+	13
TOTAL		+	0	2	+	2	0	0	0		0.5	---
<b>Grasses</b>												
<i>Agropyron cristatum</i>				2							0.3	13
<i>Agropyron smithii</i>					+						+	13
<i>Bromus tectorum</i>				1	5						0.8	25
<i>Oryzopsis hymenoides</i>				1							0.1	13
<i>Sitanion hystrix</i>								+	1		0.3	25
<i>Stipa comata</i>					+						+	13
TOTAL		0	0	4	5	0	0	+	1		1.3	---

TABLE E-6f (Cont.)

Species	(Road Mile) (Releve #)	6-9										9-12	Avg. Cover(%)	Frequency (%)
		1	2	3	4	5	6	7	8					
TOTAL VEGETATIVE COVER		27	64	23	19	72	81	50	31			45.9	---	
BARE GROUND		51	29	38	5	8	16	20	39			25.7	---	
GRAVEL AND ROCK		15	3	30	69	2	0	15	5			17.4	---	
LITTER		5	4	10	5	18	3	25	25			11.9	---	
TOTAL		71	36	78	79	28	19	60	69			55.0	---	

APPENDIX F

WILDLIFE  
DATA FOR  
UTAH

TABLE F-1

WILDLIFE SIGN AND SIGHTINGS  
MILFORD PREFERRED OBTS

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
<b>Mammals</b>																							
Unidentified bat																							
Black-tailed jackrabbit	1	3	3	5	6	6	2	2		5	7	2	4	3	8	4	4	6	5		1	2	1
Rabbit (pellets)	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
Antelope ground squirrel												1		1									
Coyote	X				X	X	X								X							X	
Badger (den)											X	X		X			X				X		
Mule deer											X	X	X	X	X		X	X	X	X			
Pronghorn antelope									X			X	X	X	X		X	X	X	X			X
<b>Birds</b>																							
Sharp-shinned hawk																							
Red-tailed hawk																							
Swanson's hawk																							
Golden eagle																							
Northern harrier	1					1		2									1	1		1			
American kestrel						1			1		2	2					25	1		2			1
Mourning dove																							
Unidentified owl (nest)																							
Hummingbird (broad-tailed?)																							
Horned lark																							
Says' phoebe																							
Common raven																							
Pinyon jay																							
Plain titmouse																							

X = Sign

Number = Actual siting

TABLE F-1 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
<b>Birds (cont.)</b>																							
Bushtit					6																		
Bewick's wren					2																		
Sage thrasher															1	2	1						
Loggerhead shrike			1	2																			
Western meadowlark																		2				3	10
Vesper sparrow															1			2			1	2	4
Lark sparrow																		1					
Sage sparrow			1	7	1	1	4	3	1	3	7				4	2		1	2		3		
Brewer's sparrow	5	1	3	4	2	3	2	4		10	3	2			12	3	14	22	2	2	4	1	8
<b>Reptiles</b>																							
Leopard lizard	1										2	1					10				1		
Sagebrush lizard	3			2	5	1	2	2	3	2	1	1				4	33		1		3		
Side-blotched lizard	3		5	5	4	5	6			5	5	2	2	2	6	3	7				10	8	3
Short-horned lizard																							
Desert horned lizard					1																		
Plateau whiptail															1								
Gopher snake					X																		

TABLE F-2  
WILDLIFE SIGN AND SIGHTINGS  
MILFORD ALTERNATE OBTS

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>Mammals</b>																
Black-tailed jackrabbit	11	12	24	5	6	7	7	1	1	2	4	5	3	12		7
Desert cottontail				1			1									
Rabbit (pellets)	X	X	X	X	X	X	X	X	X		X	X	X	X	X	
White-tailed antelope squirrel					1					2						
Coyote	1		X				X	X		X		X	X	X		X
Badger (den)							X	X								
Feral horse			X													
<b>Birds</b>																
Red-tailed hawk						1			1					1		
Golden eagle				1	2	4						1				
Northern harrier			1			2		1								
American kestrel			1			1	1	2				1		1		
Prairie falcon				2	1											
Burrowing owl	3			2												
Great horned owl														1		
Short eared owl														4		
Mourning dove										2				3		
Sage grouse						10										
Horned lark	3	6	59	4	4	33	10	1		2						
Common raven	1	2	2	2					1	2	2		1			
Plain titmouse															1	
Common bushtit														1		
Bewick's wren														1		
Rock wren						1	2									
Mockingbird										1					1	

X = Sign  
Number = Actual siting

TABLE F-2 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Birds (cont.)																
Western meadowlark			17							1						
Vesper sparrow		1	5				1									
Sage sparrow	10	9	11	3	11	20	2	3	4	17	2	3	1		1	1
White crowned sparrow													2			
Loggerhead shrike			1				1			1						
Brewer's sparrow					2	4	4	3	1	5	1		2	2		
Sparrow sp.			2										1			



TABLE F-3

WILDLIFE SIGN AND SIGHTINGS  
BERYL PREFERRED OBTS

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<b>Mammals</b>																					
Black-tailed jackrabbit	3	2		(1)	2	21(3)	(1)			1		8	1	1	2	1	5(24)	2	1	1	
Desert cottontail						(1)															
Rabbit (pellets)	X	X	X	(X)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Least chipmunk										1				3			X				
Cliff chipmunk				(1)		(2)		2								3					
White-tailed antelope squirrel					2	1															
Rock squirrel				(2)			1														
Gopher												X								X	
Coyote			X		X	1	1	1		X		X	X				3	X	X		X
Kit fox							X														
Badger							X														
Bobcat						(2)															
Mule deer		X	X	(X)		X	X			1					X	X	X	X			X
Pronghorn antelope	X	X	X		X	X					6	X					1				
Feral horse	X					X									X	1					
<b>Birds</b>																					
Sharp-shinned hawk	1						1														
Goshawk				(1)		(2)															
Coopers hawk					1																
Golden eagle											1				1						
American kestrel	1							1(1)	1	7	3	1	1	1	2		1			1	1
Sage grouse																	(X)				
Northern harrier												1	1								
Mourning dove								(3)													

( ) = observed during earlier reconnaissance in August; X = Sign; Number = Actual siting.

TABLE F-3 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Birds (cont.)								1													
Owl sp.																	(1)				
Poorwill				(12)		(4)															
Nighthawk																		1			
Common flicker	1			(3)		(2)	(1)														
Gray flycatcher																					
Ash throated flycatcher				(1)									(1)								
Hairy woodpecker																1					
Horned lark								6			1		7	6	4		(47)	7		3	
Scrub jay			1	(2)		(2)					2										
Raven					1	1		2	(1)	7		1	3	2	2			4		7	4
Pinyon jay	3		(2)	(2)	1	90	180	19		190	9			(8)		5	3		90	2	
						(8)	(4)														
Clark's nutcracker					1	(1)										2					
Mountain chickadee	10	2	(6)			(5)	4(3)	9						(3)				3	5		
Plain titmouse	3	1	(6)			(5)	11	2		3				(2)	4	2		2			2
Common bushtit	5					(3)	7(5)	9		2				3(18)	4	2		14	5		4
White-breasted nuthatch						(2)									1						
Red-breasted nuthatch			(1)		(3)	1	1			2								1			
Unidentified nuthatch																					
Bewick's wren			(4)		(1)					1				(1)					11		
Robin									(1)												
Mountain bluebird									4	1(1)	7		6				1				
Audubon warbler						2				2											
Unidentified warbler						1					1										
Western meadowlark												1								1	
Sage sparrow															1						
Chipping sparrow			(4)															2			
Brewers sparrow			(1)				1		1	5	2				1		7(22)			2	
Vesper sparrow																	(1)				

TABLE F-3 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<u>Reptiles</u>																					
Side-blotched lizard	8	1	2	(5)	3	3	10	2	3		1	1	5	5	2		1			1	2
						(4)	(11)							(4)			(29)				
Sagebrush lizard				(2)	2	(4)	2				5			(1)		5	1	6			
																	(20)				
Short-horned lizard					1																
Western fence lizard																1					
Desert horned lizard							(1)										(2)				

TABLE F-4

WILDLIFE SIGN AND SIGHTINGS  
UTAH DYN SEGMENT I-D

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-end
<u>Mammals</u>							
Desert cottontail	1			1		1	
Black-tailed jackrabbit	4	16	1	3	3	7	2
Rabbit (pellets)	X	X		X	X	X	
Chipmunk sp.				1			
Woodrat (inactive nest)				1			
Coyote	X	X			X		
Badger (inactive den)				1			
Mule deer			X	X	X	X	X
Horse	X						
Unidentified burrows	X			X	X	X	
<u>Birds</u>							
Sharp-shinned hawk				2	1	1	
Golden eagle		1					
Northern harrier	1						
American kestrel	5	3		1			
Mourning dove	5			12			
Great horned owl					1		
Hairy woodpecker						1	
Common flicker					1		
Horned lark	96	*	2		3		
Common raven	3	1					
Pinyon jay		5	1	12	10	8	2

X = Sign

Number = Actual sighting

\* = Numerous.

TABLE F-4 (Cont.)

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-end
<u>Birds (Cont.)</u>							
Mountain chickadee				5		14	
Plain titmouse				7	5	12	
Common bushtit				33	3	13	
Bewick's wren				2			
Rock wren				2			
Bluebird sp.		2	2				4
Northern oriole						1	
Sage sparrow		17	*			4	
Chipping sparrow				7			
Brewer's sparrow	6	3	2	9		4	
<u>Reptiles</u>							
Desert horned lizard		2				1	
Short-horned lizard							
Leopard lizard	6	3	1	5			
Side-blotched lizard	52	*	7	34	22	2	
Sagebrush lizard	8	3		2	1	3	
Western fence lizard				3	3		
Northern plateau lizard (?)			1				
Garter snake			1				

TABLE F-5

WILDLIFE SIGN AND SIGHTINGS  
UTAH DYN SEGMENT I-D

Road Mile	0-3	3-6	6-end
<u>Mammals</u>			
Desert cottontail	1	2	2
Black-tailed jackrabbit	11	3	3
Rabbit (pellets)	X	X	X
Cliff chipmunk		5	
Unidentified squirrel	1		
Woodrat	X		X
Coyote		1	
Badger (inactive den)	X		
Skunk	X		
Mule deer	X		X
Pronghorn antelope	X		
Feral horse	X	X	
Unidentified burrows	X	X	X
<u>Birds</u>			
Sharp-shinned hawk	2		
Cooper's hawk	1		
Golden Eagle	1		
Northern harrier		1	
Prairie falcon	1	1	1
American kestrel	1		
Mourning dove			1
Common nighthawk		1	

X = Sign; Number = Actual sighting; \* = Numerous.

TABLE F-5 (Cont.)

Road Mile	0-3	3-6	6-end
<u>Birds (Cont.)</u>			
Hairy woodpecker		1	
Say's phoebe	1		1
Scrub jay			1
Common raven		1	39
Pinyon jay	13	71	1
Mountain chickadee		1	4
Plain titmouse	1	11	9
Common bushtit	10	15	
Bewick's wren	2	1	
Rock wren	3		
Mountain bluebird	1		
Bluebird sp.	3		
Rufous-sided towhee		1	
Sage sparrow	11	1	
Chipping sparrow		3	
Brewers sparrow	31		
<u>Reptiles</u>			
Leopard lizard		2	1
Side-blotched lizard	13	*	*
Sagebrush lizard	6	3	1
Western fence lizard	1	3	
Western whiptail		3	

TABLE F-6

WILDLIFE SIGN AND SIGHTINGS  
UTAH DYN SEGMENT I-D

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-end
<u>Mammals</u>								
Desert cottontail					1	1	3	1
Black-tailed jackrabbit		2	2	5		4	10	2
Rabbit (pellets)	X	X	X	X		X	X	X
Cliff chipmunk			5		1		1	
Chipmunk sp.		1						
Gopher			X					
Woodrat				X				
Coyote			X	X		X		
Mule deer			X			X		
Pronghorn antelope					X			5
Horse			X					
<u>Birds</u>								
Red-tailed hawk		1	1				1	
Northern harrier								
American kestrel	3							
Screech owl						1		
Common flicker			1					
Horned lark	55-65					5		6
Scrub jay				1		1		
Common raven	2			1				1
Pinyon jay		5	39	1		7	5	32
Mountain chickadee		3	3					

X = Sign; Number = Actual Sighting.



TABLE F-6 (Cont.)

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-end
<b>Birds (Cont.)</b>								
Plain titmouse		2	6			6		
Common bushtit		5	16	2		7		
Nuthatch (?)			1					
Bewick's wren		1						
Rock wren				2				
Meadowlark	1		1					
Rufous-sided towhee				1				
Vesper sparrow	1	6	1	6	2	2	2	
Sage sparrow							15	4
Brewers sparrow		3	6	9	2	9		
<b>Reptiles</b>								
Short-horned lizard				1			1	
Side-blotched lizard							3	
Sagebrush lizard							3	

APPENDIX G

LIST OF PREPARERS

APPENDIX G

LIST OF PREPARERS

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APPENDIX F

WILDLIFE  
DATA FOR  
UTAH

TABLE F-1

WILDLIFE SIGN AND SIGHTINGS  
MILFORD PREFERRED OBTS

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
<u>Mammals</u>							1																
Unidentified bat	1	3	3	5	6	6	2	2		5	7	2	4	3	8	4	4	6	5		1	2	1
Black-tailed jackrabbit	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
Rabbit (pellets)												1		1									
Antelope ground squirrel																							
Coyote	X				X		X								X							X	
Badger (den)												X									X		
Mule deer											X	X		X		X							
Pronghorn antelope										X		X	X	X	X	X	X	X	X	X			X
<u>Birds</u>																							
Sharp-shinned hawk																							
Red-tailed hawk												1											
Swanson's hawk												1											
Golden eagle																				1			
Northern harrier																	1	1					
American kestrel	1							2	1			2		2			1	1		2			1
Mourning dove																	25						
Unidentified owl (nest)																							
Hummingbird (broad-tailed?)																1							
Horned lark																	4	6	1		5	68	4
Says' phoebe																							
Common raven											1			2									
Pinyon jay	1	1	1																				
Plain titmouse																							

X = Sign

Number = Actual siting

TABLE F-1 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Birds (cont.)																							
Bushtit					6																		
Bewick's wren					2																		
Sage thrasher															1	2	1						
Loggerhead shrike			1	2																			
Western meadowlark																		2				3	10
Vesper sparrow																1		2			1	2	4
Lark sparrow																		1					
Sage sparrow			1	7	1	1	4	3	1	3	7				4	2		1	2		3		
Brewer's sparrow	5	1	3	4	2	3	2	4	10	3	2				12	3	14	22	2	2	4	1	8
Reptiles																							
Leopard lizard	1									2	1						10				1		
Sagebrush lizard	3		2	5	1	2	2	3	2	1	1					4	33		1		3		
Side-blotched lizard	3		5	5	4	5	6		5	5	2	2	2	2	6	3	7				10	8	3
Short-horned lizard																					1		
Desert horned lizard					1													2					
Plateau whiptail															1								
Gopher snake					X	1												8					

TABLE F-2

WILDLIFE SIGN AND SIGHTINGS  
MILFORD ALTERNATE OBTS

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>Mammals</b>																
Black-tailed jackrabbit	11	12	24	5	6	7	7	1	1	2	4	5	3	12		7
Desert cottontail				1			1									
Rabbit (pellets)	X	X	X	X	X	X	X	X	X		X	X	X	X	X	
White-tailed antelope squirrel					1					2						
Coyote	1	X					X	X		X		X	X	X		X
Badger (den)						X	X									
Feral horse		X														
<b>Birds</b>																
Red-tailed hawk						1		1						1		
Golden eagle				1		2	4						1			
Northern harrier			1				2	1								
American kestrel			1			1	1	2			1			1		
Prairie falcon				2		1										
Burrowing owl	3			2												
Great horned owl														1		
Short eared owl														4		
Mourning dove										2				3		
Sage grouse						10										
Horned lark	3	6	59	4	4	33	10	1		2						
Common raven	1	2	2	2					1	2	2		1			
Plain titmouse															1	
Common bushtit															1	
Bewick's wren															1	
Rock wren						1	2									
Mockingbird										1					1	

X = Sign

Number = Actual siting

TABLE F-2 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Birds (cont.)																
Western meadowlark			17							1						
Vesper sparrow		1	5				1									
Sage sparrow	1,	9	11	3	11	20	2	3	4	17	2	3	1		1	1
White crowned sparrow													2			
Loggerhead shrike			1				1			1						
Brewer's sparrow					2	4	4	3	1	5	1		2	2		
Sparrow sp.		2											1			



TABLE F-3

WILDLIFE SIGN AND SIGHTINGS  
BERYL PREFERRED OBTS

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<b>Mammals</b>																					
Black-tailed jackrabbit	3	2		(1)	2	2(3)	(1)			1		8	1	2	1	5(24)	2	1			
Desert cottontail	X	X	X	(X)	X	X	(1)			X	X	X	X	X	X	X	X	X	X	X	X
Rabbit (pellets)																					
Least chipmunk																					
Cliff chipmunk				(1)	(2)			2		1			3			3					
White-tailed antelope squirrel																					
Rock squirrel				(2)	2	1															
Gopher							1														
Coyote																					
Kit fox																					
Badger																					
Bobcat																					
Mule deer																					
Pronghorn antelope																					
Feral horse																					
<b>Birds</b>																					
Sharp-shinned hawk	1																				
Goshawk				(1)			1														
Coopers hawk							(2)														
Golden eagle																					
American kestrel																					
Sage grouse	1																				
Northern harrier																					
Mourning dove																					

( ) = observed during earlier reconnaissance in August; X = Sign; Number = Actual siting.

TABLE F-3 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Birds (cont.)									1												
Owl sp.																	(1)				
Poorwill																					
Nighthawk				(12)		(4)															
Common flicker	1			(3)		(2)	(1)								1			1			
Gray flycatcher																					
Ash throated flycatcher				(1)									(1)								
Hairy woodpecker																1					
Horned lark								6			1		7	6	4		(47)	7		3	
Scrub jay			1	(2)		(2)					2										
Raven					1	1		2	(1)	7		1	3	2	2			4		7	4
Pinyon jay	3		(2)	(2)	1	90	180	19		190	9			(8)		5		3	90	2	
						(8)	(4)														
Clark's nutcracker					1	(1)										2					
Mountain chickadee	10	2	(6)			(5)	4(3)	9						(3)				3	5		
Plain titmouse	3	1	(6)			(5)	11	2		3				(2)	4	2		2			2
Common bushtit	5					(3)	7(5)	9		2				3(18)	4	2		14	5		4
White-breasted nuthatch						(2)									1						
Red-breasted nuthatch			(1)			(3)	1	1		2								1			
Unidentified nuthatch																					
Bewick's wren			(4)			(1)					1			(1)					11		
Robin									(1)												
Mountain bluebird								4	1(1)	7		2	6				1				
Audubon warbler								2		2											
Unidentified warbler								1			1										
Western meadowlark												1								1	
Sage sparrow															1						
Chipping sparrow			(4)															2			
Brewers sparrow			(1)				1		1	5	2				1		7(22)			2	
Vesper sparrow																	(1)				

TABLE F-3 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<u>Reptiles</u>																					
Side-blotched lizard	8	1	2	(5)	3	3	10	2	3	1	1	1	5	5	2		1			1	2
						(4)	(11)							(4)			(29)				
Sagebrush lizard				(2)	2	(4)	2			5				(1)		5	1	6			
																	(20)				
Short-horned lizard					1																
Western fence lizard						(1)										1					
Desert horned lizard																	(2)				

TABLE F-4

WILDLIFE SIGN AND SIGHTINGS  
UTAH DYN SEGMENT I-D

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-end
<b>Mammals</b>							
Desert cottontail	1			1		1	
Black-tailed jackrabbit	4	16	1	3	3	7	2
Rabbit (pellets)	X	X		X	X	X	
Chipmunk sp.				1			
Woodrat (inactive nest)				1			
Coyote	X	X			X		
Badger (inactive den)				1			
Mule deer			X	X	X	X	X
Horse	X						
Unidentified burrows	X			X	X	X	
<b>Birds</b>							
Sharp-shinned hawk				2			
Golden eagle		1			1	1	
Northern harrier	1						
American kestrel	5	3		1			
Mourning dove	5			12			
Great horned owl					1		
Hairy woodpecker						1	
Common flicker					1		
Horned lark	96	*	2				
Common raven	3	1			3		
Pinyon jay		5	1	12	10	8	2

X = Sign

Number = Actual sighting

\* = Numerous.

TABLE F-4 (Cont.)

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-end
<u>Birds (Cont.)</u>							
Mountain chickadee				5		14	
Plain titmouse				7	5	12	
Common bushtit				33	3	13	
Bewick's wren				2			
Rock wren				2			
Bluebird sp.		2	2				4
Northern oriole						1	
Sage sparrow		17	*			4	
Chipping sparrow				7			
Brewer's sparrow	6	3	2	9		4	
<u>Reptiles</u>							
Desert horned lizard		2					
Short-horned lizard						1	
Leopard lizard	6	3	1	5			
Side-blotched lizard	52	*	7	34	22	2	
Sagebrush lizard	8	3		2	1	3	
Western fence lizard				3			
Northern plateau lizard (?)			1				
Garter snake			1				

TABLE F-5

WILDLIFE SIGN AND SIGHTINGS  
UTAH DTN SEGMENT I-D

Road Mile	0-3	3-6	6-end
<u>Mammals</u>			
Desert cottontail	1	2	2
Black-tailed jackrabbit	11	3	3
Rabbit (pellets)	X	X	X
Cliff chipmunk		5	
Unidentified squirrel	1		
Woodrat	X		X
Coyote		1	
Badger (inactive den)	X		
Skunk	X		
Mule deer	X		X
Pronghorn antelope	X		
Feral horse		X	
Unidentified burrows	X	X	X
<u>Birds</u>			
Sharp-shinned hawk	2		
Cooper's hawk	1		
Golden Eagle	1		
Northern harrier		1	
Prairie falcon	1	1	1
American kestrel	1		
Mourning dove			1
Common nighthawk		1	

X = Sign; Number = Actual sighting; \* = Numerous.

TABLE F-5 (Cont.)

Road Mile	0-3	3-6	6-end
<u>Birds (Cont.)</u>			
Hairy woodpecker		1	
Say's phoebe	1		1
Scrub jay			1
Common raven		1	1
Pinyon jay	13	71	39
Mountain chickadee		1	1
Plain titmouse	1	11	4
Common bushtit	10	15	9
Bewick's wren	2	1	
Rock wren	3		
Mountain bluebird	1		
Bluebird sp.	3		
Rufous-sided towhee		1	
Sage sparrow	11	1	
Chipping sparrow		1	
Brewers sparrow	31	3	
<u>Reptiles</u>			
Leopard lizard		2	1
Side-blotched lizard	13	*	*
Sagebrush lizard	6	3	1
Western fence lizard	1	3	
Western whiptail		3	

TABLE F-6

WILDLIFE SIGN AND SIGHTINGS  
UTAH DTN SEGMENT I-D

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-end
<u>Mammals</u>								
Desert cottontail					1	1	3	1
Black-tailed jackrabbit		2	2	5		4	10	2
Rabbit (pellets)	X	X	X	X		X	X	X
Cliff chipmunk			5		1		1	
Chipmunk sp.		1						
Gopher			X					
Woodrat				X				
Coyote			X	X		X		
Mule deer			X			X		
Pronghorn antelope					X			5
Horse			X					
<u>Birds</u>								
Red-tailed hawk		1	1					
Northern harrier							1	
American kestrel	3							
Screech owl						1		
Common flicker			1					
Horned lark	55-65					5		6
Scrub jay				1		1		
Common raven				1				1
Pinyon jay	2	5	39	1		7	5	32
Mountain chickadee		3	3					

X = Sign; Number = Actual Sighting.



TABLE F-6 (Cont.)

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-end
Birds (Cont.)								
Plain titmouse		2	6			6		
Common bushtit		5	16	2		7		
Nuthatch (?)			1					
Bewick's wren		1						
Rock wren				2				
Meadowlark	1		1					
Rufous-sided towhee				1				
Vesper sparrow	1	6	1	6	2	2	2	
Sage sparrow					2	9	15	4
Brewers sparrow		3	6	9				
Reptiles								
Short-horned lizard				1			1	
Side-blotched lizard							3	
Sagebrush lizard							3	

APPENDIX G

LIST OF PREPARERS

APPENDIX G

LIST OF PREPARERS

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